Cassette Car Radio 22DC460/75

22DC460/75E

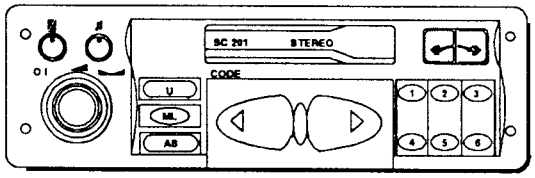
Service
Service
Service

For repair information of the cassette deck see Service Manual of Auto Cassette deck P1-10

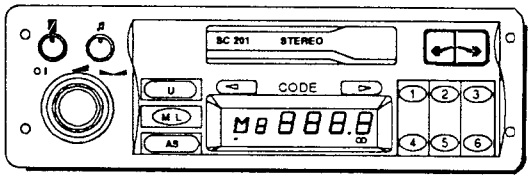
ServiceManual

12 V

22 DC 460/75E



22 DC 460/75



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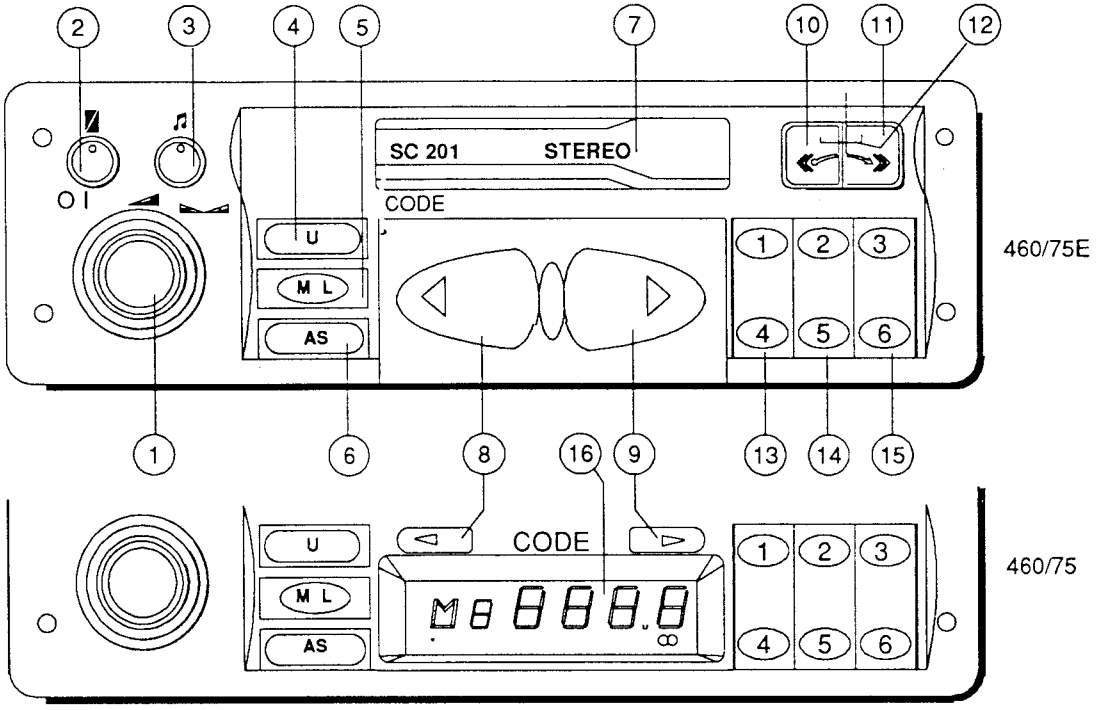
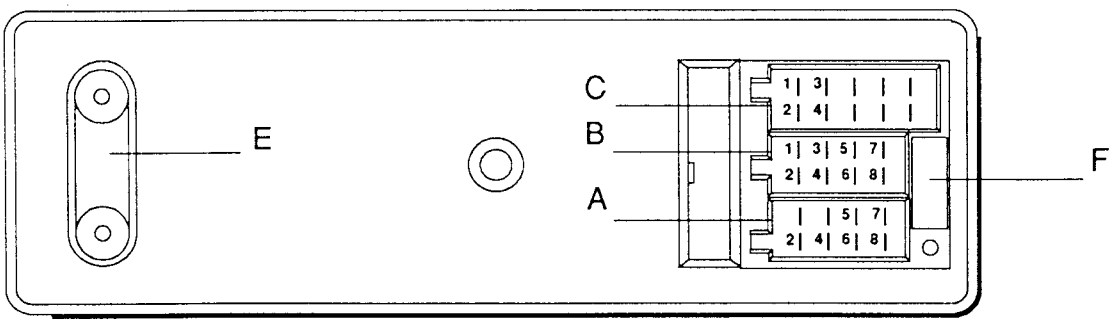
CONTROLS



1. On-Off Vol. Bal
2. Fader (pop-out button)
3. Tone (")
4. FM Band
5. MW/LW Band
6. Autostore
7. Cassette aperture
8. Button search down
9. Button search up
10. Fast rewind
11. Fast forward
12. 10 +11 Stand-by - Eject
13. Rocker button preset 1-4
14. Rocker button preset 2-5
15. Rocker button presrt 3-6
16. LCD (for 460/75)

REAR VIEW



A : POWER SUPPLY

- A2 Anti Theft Ground
- A4 Switched Plus
- A5 Switched Aerial
- A6 Controlled Illumination
- A7 Permanent Plus
- A8 Ground

B : LOUDSPEAKERS

- B1 Rear right
- B2 Rear right ground
- B3 Front Right
- B4 Front Right ground
- B5 Front Left
- B6 Front Left Ground
- B7 Rear left
- B8 Rear left Ground

C : EXTERNAL DISPLAY (460/75E)

- C1 Serial Data line
- C2 Serial Clock line
- C3 Bus Ground
- C4 Master Request Line

E : AERIAL PLUG

F : FUSE 5A

22DC460/75.../75E

TECHNICAL DATA

GENERAL

Power supply	:14.4V DC
Dimensions	:180x150x51 mm

RADIO

LW	: 144-288 KHz
MW	: 531-1611 KHz
FM	: 87.5-108 MHz
IF-AM	: 10.7 MHz
IF-FM	: 10.7 MHz
Sensivity 26dB S/R	: 35 µV (LW)
	: 30 µV (MW)
	: 4 µV (FM)
Limitation α-3dB	: 15 µV

CASSETTE

Cassette mechanism	: P1-10
number of tracks	: 2
Tape speed	: 4.76 cm/sec
Wow and flutter	: ≤0.35%
Crosstalk	:≥ 30 dB

AMPLIFIER

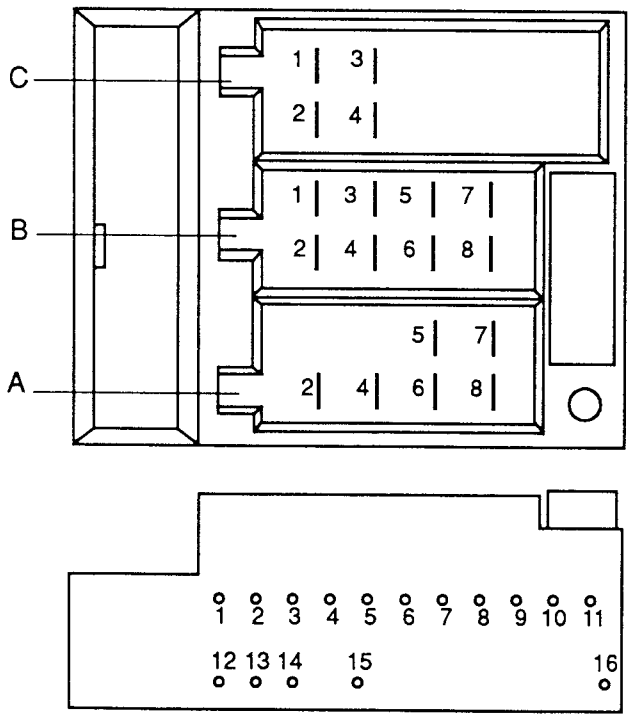
Output power (at D = 10%)	: 4 X 5.4 W / 4Ω
Loudness	: AUTO
Tone control	
Bass	: ± 12 dB at 60 Hz
Treble	: ± 12 dB at 10 KHz

ESD

WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

Connector block wiring diagram



A2 = A8 = 16
A4 = 14
A5 = 13
A6 = 12
A7 = Fuse

B2-3-6-7 = 15
B1 = 6
B4 = 7
B5 = 8
B8 = 9

C1 = 1
C2 = 2
C3 = 16
C4 = 3

Test program - Security code

Display test : Press P4-P6
Display shows all segments (fig a)

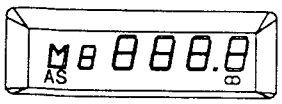


Fig a

Activating security code :

Press AST + Power ON

Display shows – – – –

Enter code

Press AS untill beep

When code is activated display shows briefly SAFE when the set is powered ON

Deactivating security code :

Press AST + Power ON

Display shows 10 – – – –

Enter code

Press AS untill beep

Entering a code

Suppose the code is 3457

Press AST + Power ON

Display shows – – – –

Press P1

Display shows 0 – – –

Press UP key untill display shows 1st digit of code
3 – – –

Press P2

Display shows 3 **0** – –

Press UP key untill display shows 2nd digit of code
3 **4** – –

Press P3

Display shows 3 4 **0** –

Press UP key untill display shows 3rd digit of code
3 4 **5** –

Press P4

Display shows 3 4 5 **0**

Press UP key untill display shows 4th digit of code
3 4 5 **7**

Right code

Beep

Radio starts

Wrong code

1st → Waiting time 10s

2nd → Waiting time 10s

3rd → Waiting time 10s

4th → Waiting time 10mn

5th → Waiting time 20mn

6th → Waiting time 40mn

7th → Waiting time 80mn

8th → Waiting time 160mn

9th → Waiting time 320mn

10th → Waiting time 640mn

11th → EEPROM TO BE CHANGED

For checking and adjusting see general procedures

Check	SK				Setting of controls		
Demodulated FM levels	FM	93 MHz 1 mV Δf=22.5 KHz f mod = 1 KHz				◇5◇ 160 mV ± 1 dB	
		93 MHz 1 mV Δf = 6.75 KHz f mod = 19 KHz	◇B◇			◇5◇ 45 mV ± 1 dB	
Demodulated AM level	MW	1053 KHz 1 mV 1 KHz, 30% AM	◇A◇			250 mV ≤ ◇8◇ ≤ 500 mV	
VC FM	FM			87.5 MHz		◇6◇ > 1.0 V	
				108 MHz		◇6◇ < 6.5 V	
VC AM	LW			144 KHz		◇6◇ > 0.8 V	
	MW			1611 KHz		◇6◇ < 6.5 V	
Search level AM	MW	990 KHz 70μV	◇A◇			◇4◇ 0,7V DC ± 50 mV	
I.A.C.	FM	τ = 10 msec T = 300 msec Vp = 60 mV	◇C◇				◇9◇ 25-50 ms

Adjustment	SK					
FM oscillator	FM	87,5 MHz unmodulated	◇B◇	P1 87,5 MHz	5103	◇1◇ 0 V ± 50 mV ◇2◇
FM - IF	FM	87,5 MHz unmodulated	◇B◇	P1 87,5 MHz	5104	◇3◇ max DC
Quad detector	FM	93 MHz40 μV	◇B◇	P2 93 MHz	5150	DC between 11 and 15 6150 ≤ 200 mV
FM - RF	FM	87,5 MHz unmodulated	◇B◇	P1 87,5 MHz	5100	◇3◇ Max DC
		93 MHz 100 μV		P2 93 MHz	5102	
		104 MHz unmodulated		P3 104 MHz	3114	
FM limiting sensivity	FM	93 MHz 125μV Δf = 22.5 KHz f mod = 1 KHz	◇B◇	P2 93 MHz	3160	◇3◇ 1.6 V DC ± 0.1 V
Search level AM	MW	990 KHz 30μV unmodulated	◇A◇	P1 990 KHz	3083	◇4◇ 0.74V DC±50 mV

DC VOLTAGES

7050 TEA6200

1 = 6.8V
2 = 4.0V
3 = 8.5V
4 = 8.4V
5 = 8.4V
6 = 8.1V
7 = 1.0V
8 = 4.0V
9 = 4.0V
10 = GND
11 = 6.7V
12 = 2.9V
13 = 5.0V
14 = 7.3V
15 = 4.7V
16 = 4.7V
17 = GND
18 = 1.0V
19 = 1.2V
20 = 3.1V

7100 LA1177

1 = 2.7V FM
2 = 7.8V FM
3 = 7.4V FM
4 = 1.2V FM
5 = GND
6 = 4.8V
7 = 1.5V
8 = 4.3V
9 = 7.8V

7150 TDA1596

1 = 8.5V
2 = 1.4V
3 = 4.0V
4 = 3.2V
5 = 3.9V
6 = 4.3V St
7 = 2.8V
8 = 2.2V
9 = 4.2V
10 = 4.2V
11 = 3.9V
12 = 0.0V
13 = 0.0V
14 = 4.0V
15 = GND
16 = 1.8V
17 = 1.8V
18 = 1.8V

7248 TEA5581

1 = 3.4V
2 = 1.5V
3 = 0.7V ST
4 = 0.9V
5 = 0.0V
6 = 2.3V ST
7 = 2.0V FM
8 = 1.7V
9 = 7.6V
10 = 0.5V
11 = NC
12 = 3.4V
13 = 3.4V
14 = 1.5V
15 = 2.1V
16 = 3.4V

7249 IAC7

2 = 2.6V
4 = 3.5V
5 = 4.2V
6 = 7.7V
7 = 8.2V
8 = GND

7250 UPC1228H

1 = 1.4V
2 = 0.8V
3 = 0.9V
4 = 7.9V
5 = GND
6 = 0.9V
7 =
8 =
9 = GND

7455 UPD1719

1 = GND
2 = 1.1V
3 = NC
4 = 5V
5 = NC
6 = 2.2V
7 = 4.1V
8 = 5V
9 = Keyboard A
10 = Keyboard B
11 = Keyboard C
12 = 4.8V
13 = 0.0V
14 = 3.8V Radio
15 = 4.6V Cass 0.5V Rad Pause
16 = 4.8V Clock
17 = 0.0V
18 = 4.8V Master Request
19 = 4.8V Data
20 = 4.8V FM 0.0V AM
21 = 0.0V ON
22 = 0.0V Radio
23 = 4.8V Beep
24 = 4.5 MHz
25 = 4.5 MHz
26 = GND
27 = NC
28 = 5V Cass On
29 = 5V
30 = NC
31 = NC
32 = NC
33-37 = 2.6 V LCD
38 = NC
39 = 2.6V LCD
40 = NC
41-57 = 2.6 V LCD
58 = GND
59 = Keyboard 1
60 = Keyboard 2
61 = Keyboard 3
62 = Keyboard 4

7500 ST24C02

1 = GND
2 = GND
3 = GND
4 = GND
5 = SDA
6 = SCL
7 = GND
8 = 5.1V

7650/7651 TDA1519A

1 = 2.0V
2 = GND
3 = 6.9V
4 = 6.8V
5 = GND
6 = 6.8V
7 = 14.4V
8 = 13.6V
9 = 2.0V

7102 BF992
g1 = 4.1V
g2 = 5.8V
s = 4.1V
d = 8.0V FM

7450	7752
e = GND	e = 4.8V
b = 0.7V	b = 5.5V
c = 0.0V	c = 8.4V
7451	7753
e = 4.8V	e = GND
b = 4.1V	b = 0.0V
c = 4.8V	c = 13.6V
7452	7754
e = 4.8V	e = GND
b = 4.7V	b = 0.7V
c = 4.1V	c = 0.0V
7453	7755
e = 4.8V	e = 13.5V
b = 4.8V	b = 13V
c = 4.1V	c = 12.7V
7454	7756
e = GND	e = 13.5V
b = 0.0V	b = 12.7V
c = 4.8V	c = 13.3V
7480	7757
e = GND	e = GND
b = 0.7V	b = 0.8V
c = 0.0V	c = 0.8V
7481	7759
e = GND	e = 14.3V
b = 0.0V	b = 14.3V
c = 13.7V	c = 13.6V
7750	7761
e = 8.4V	e = 0.8V
b = 14.3V	b = 1.4V
c = 14.3V	c = 0.8V
7751	7762
e = 8.4V	e = GND
b = 7.7V	b = 0.7V
c = 8.2V	c = 1.2V

MAIN PANEL RADIO PART

AM FILTER

FM FILTER

6759 DSP

BF992

LA1177 7100

BUF

OSC

BUF

AGC

+FM

+AM

VTAM

VTFM

AMMUTE

7050 TEA6200

AGC

VCOH

BF410C

BF494

FMIF

TDA1596 7150

LOGIC GATES

COMPARATORS

DETUNE DETECT

MOD SWITCH

THD COMP

MUTE

Vref

SDS

FMLF

7249 IAC7

AMMUTE

BB419

BB804

IN4148

BZX79C2V4

K7L

BEEP

K7R

A.F. Left

A.F. Right

VCO ON/OFF

VCO 228Khz

DIV

MPX DECODER

PILOTE PRESENCE CONTROL

STEREO IND

7248 TEA5581

SDS CONTRCL

RAD

STSIG

+5V [+4]

FML

[+3]

+8V5

22DC460/75

22DC460/75E

5 a

5 b

2050	E 1	3246 J12
2051	H 1	3247 I11
2052	I 1	3248 I10
2053	I 1	3249 H10
2054	H 2	5029 F 5
2055	H 2	5050 F 1
2057	G 3	5051 F 1
2058	H 3	5052 H 1
2059	H 4	5053 G 1
2060	F 4	5054 G 3
2063	J 2	5055 G 4
2064	K 2	5056 K 2
2065	K 2	5057 K 3
2066	K 4	5058 G 2
2067	K 5	5070 K 4
2068	K 5	5071 K 4
2069	J 7	5072 H 5
2070	J 7	5100 C 1
2071	I 7	5101 B 4
2072	F 5	5102 B 5
2080	G 8	5103 D 6
2081	G 6	5104 D 8
2100	C 1	5115 C 9
2101	C 2	5116 C10
2102	C 2	5150 A12
2103	D 3	6051 F 3
2104	D 3	6100 C 1
2105	E 4	6101 C 5
2106	B 3	6102 D 6
2107	B 4	6150 B15
2108	D 7	6248 E11
2109	B 4	6249 H 9
2110	B 4	6759 B 1
2111	C 4	7014 G 5
2112	B 5	7050 I 6
2113	C 6	7080 G 7
2114	B 6	7100 C 8
2115	D 6	7102 B 3
2116	E 6	7150 C12
2117	E 5	7248 G13
2118	E 7	7249 E15
2119	E 6	9006 D10
2120	C 9	
2150	D10	
2151	C10	
2152	E10	
2153	E11	
2154	B14	
2155	C15	
2161	A12	
2162	A12	
2163	E 9	
2164	A12	
2233	E14	
2234	D16	
2235	D16	
2236	D16	
2239	F13	
2240	I13	
2241	F13	
2242	J13	
2243	E14	
2244	F12	
2245	F10	
2246	F10	
2247	G10	
2248	H10	
2249	J12	
2460	I11	
3023	F 5	
3050	F 1	
3051	H 1	
3052	F 4	
3054	K 3	
3055	J 5	
3056	I 7	
3057	I 7	
3081	G 7	
3082	G 7	
3083	H 7	
3100	C 2	
3101	C 3	
3102	C 4	
3103	C 3	
3104	C 2	
3105	B 3	
3106	D 3	
3107	C 5	
3108	B 3	
3109	A 5	
3110	B 4	
3111	D 3	
3112	C 5	
3113	D 5	
3114	E 5	
3115	F 6	
3116	D 7	
3117	E 7	
3118	E 6	
3119	E 6	
3137	B10	
3150	G10	
3151	B12	
3155	B15	
3160	E11	
3227	H10	
3228	D16	
3229	G14	
3230	H14	
3231	F14	
3232	I14	
3233	F14	
3234	I14	
3235	F13	
3236	I13	
3237	F13	
3238	J13	
3239	F12	
3240	F11	
3241	F11	
3242	F11	
3243	F10	
3244	H10	
3245	I12	

+8V5 MAIN PANEL MICRO + SUPPLY PART

VTAM VTFM [+3]

POLAR

HOLD SUPPLY STSIG VCOH FMLEVEL K7ON RAD AM/FM MRQ CLOCK PLAY ON/OFF BEEP PLOP DATA FMIF K7 IGNI

UPD1719
7455

DISPLAY

HOLD +5V [+4]

IGNI

ONOFF

HOLD

SUPPLY

CONNECTOR BLOCK PART A

SWITCHED PLUS

EXT ILLUM

AUT AERIAL

PERMANENT PLUS

ANTI-THEFT GROUND

GROUND

CONNECTOR BLOCK PART C

FOR DC460/75E ONLY

DATA

CLOCK

MRQ

ALIM

+FM

AMMUTE

AM/FM

MEMORY REGISTER

ADDRESS CTR

CONTROL LOGIC

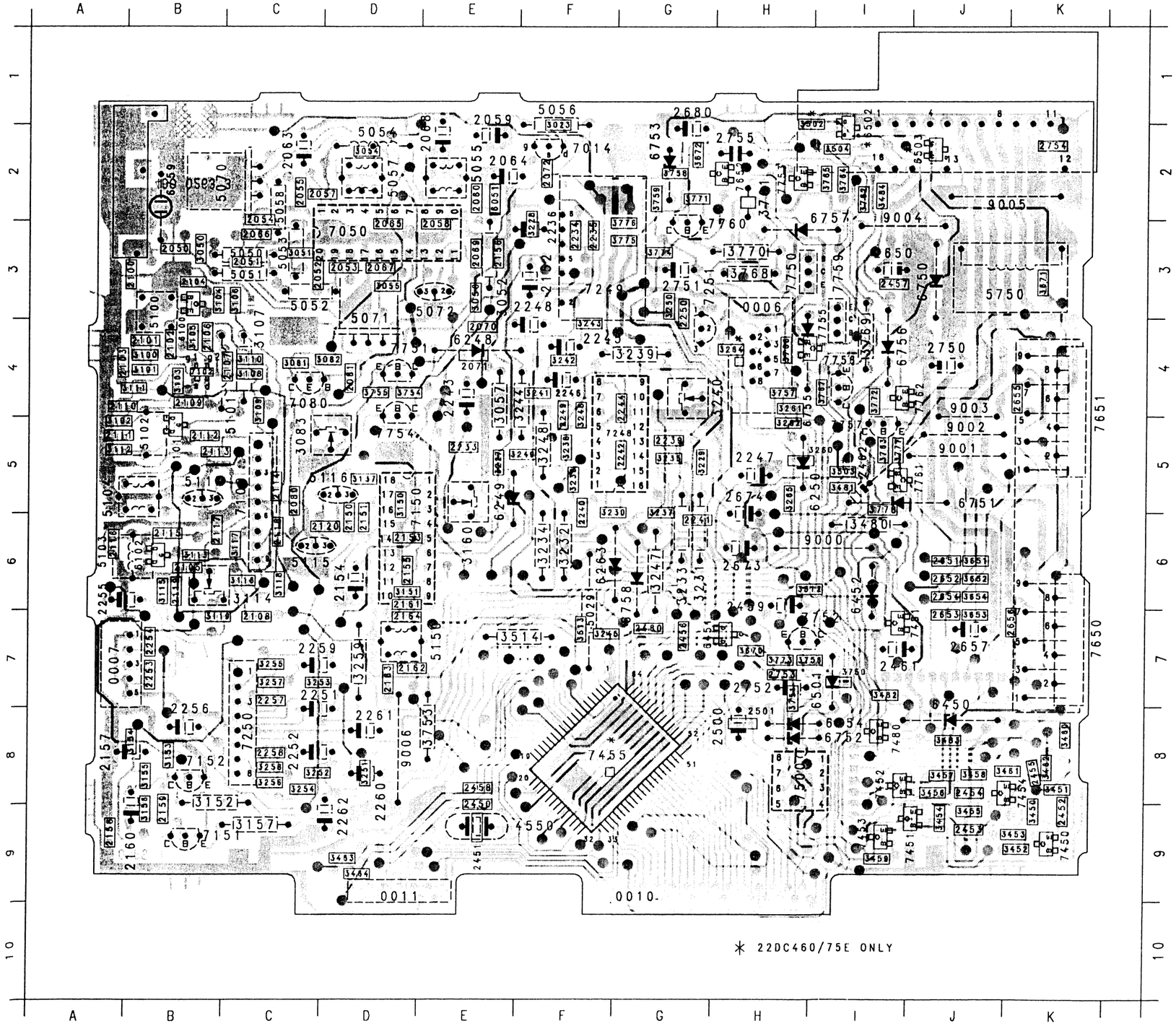
REGISTER COMPARATOR

7500
ST24C02
TEST

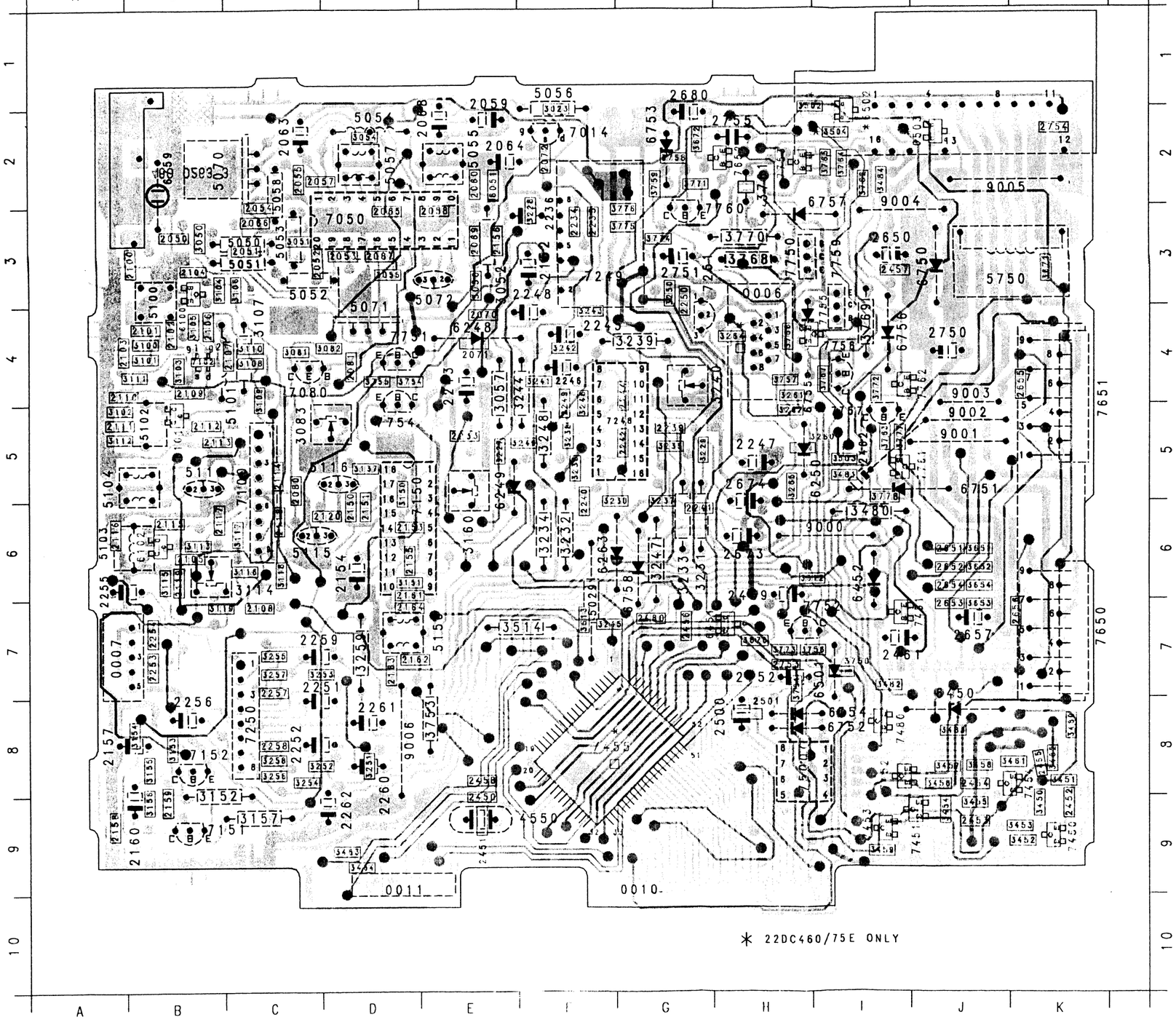
22DC460/75
22DC460/75E

6 a

6 b

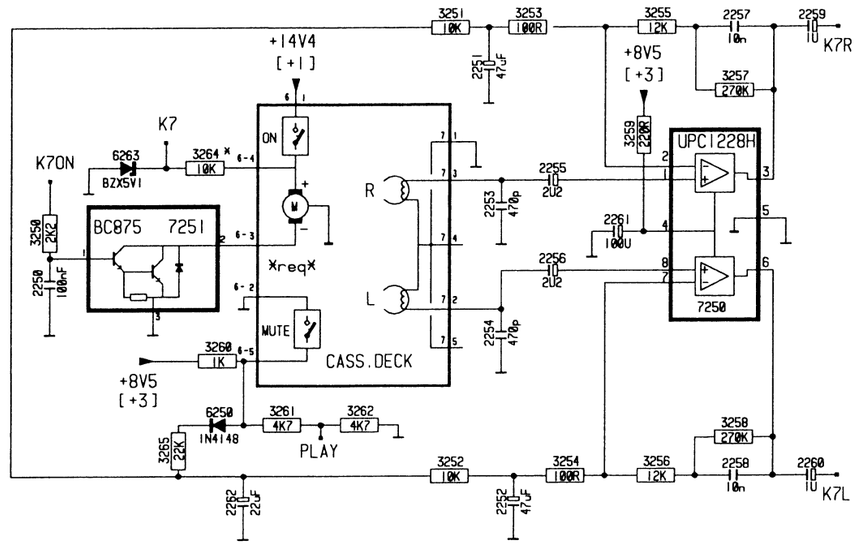


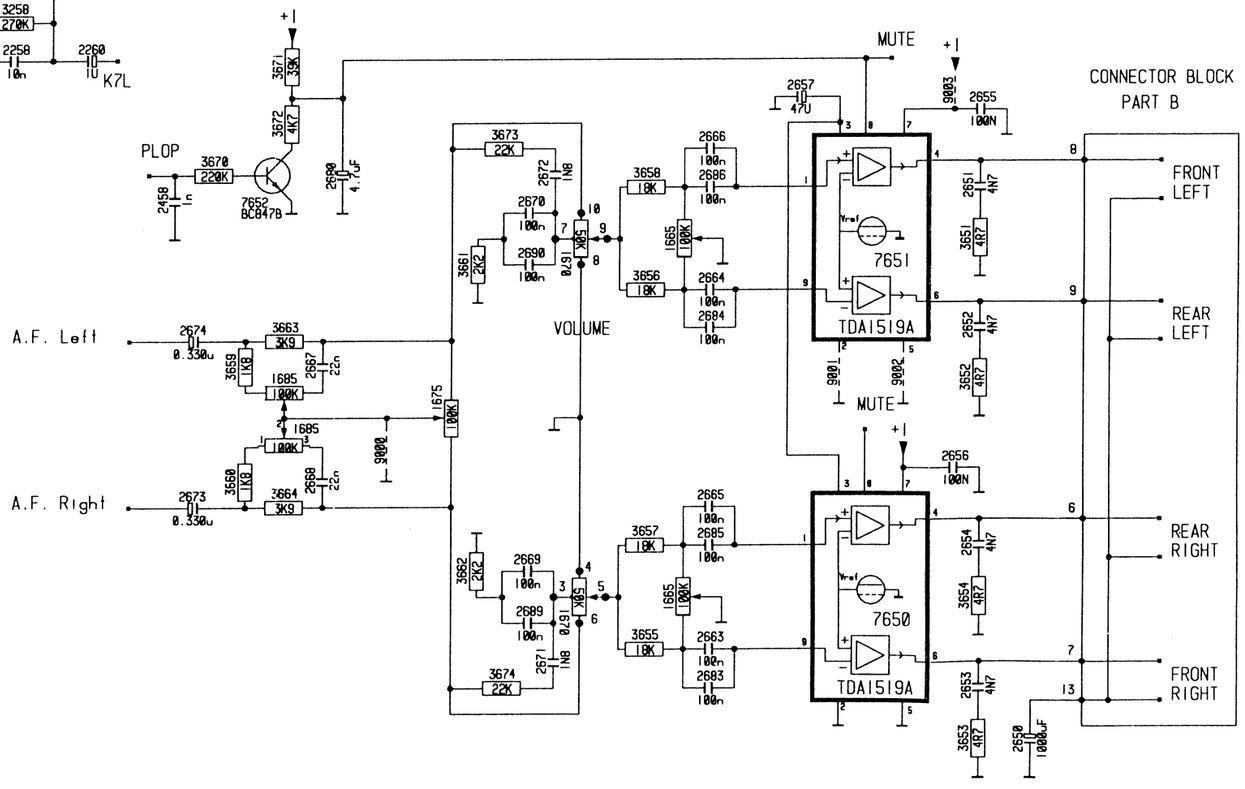
0006	3H	2455	8K	3254	8C	6051	2E
0007	7A	2456	7G	3255	7C	6100	4B
0010	9G	2457	3I	3256	8C	6101	5B
0011	9D	2458	8E	3257	7C	6102	6B
2050	3B	2459	6H	3258	8C	6248	4E
2051	3C	2460	7G	3259	7D	6249	6E
2052	3C	2461	7I	3260	5I	6250	5I
2053	3D	2462	5I	3261	4H	6263	6F
2054	3C	2500	8H	3262	5H	6450	7J
2055	2C	2501	8H	3264	4H	6451	7G
2057	2C	2650	3I	3265	5H	6452	6I
2058	3E	2651	6J	3450	9K	6501	7I
2059	1E	2652	6J	3451	8K	6502	1I
2060	2E	2653	7J	3452	9K	6503	2J
2063	2C	2654	6J	3453	9K	6750	3J
2064	2E	2655	4K	3454	9J	6751	5J
2065	3D	2656	7K	3455	9J	6752	8I
2066	3C	2657	7J	3456	8J	6753	2G
2067	3D	2673	6H	3457	8J	6754	8I
2068	2E	2674	5H	3458	8J	6755	4H
2069	3E	2680	1G	3459	9I	6756	4I
2070	4E	2750	4J	3460	8K	6757	2I
2071	4E	2751	3G	3461	8K	6758	6G
2072	2F	2752	7H	3462	8K	6759	2B
2080	5C	2753	7H	3463	9D	7014	2F
2081	4D	2754	2K	3464	9D	7050	3D
2100	3B	2755	2H	3480	6I	7080	4C
2101	4B	3023	2F	3481	5I	7100	5C
2102	4B	3050	3B	3482	7I	7102	4B
2103	4A	3051	3C	3483	8J	7150	5D
2104	3B	3052	3E	3484	2I	7151	9C
2105	6B	3054	2D	3502	2H	7152	8B
2106	4B	3055	3D	3503	5I	7248	5G
2107	4C	3056	3E	3504	2I	7249	3F
2108	7C	3057	4E	3512	6H	7250	8C
2109	4B	3081	4C	3513	7F	7251	3G
2110	4A	3082	4D	3514	7F	7450	9K
2111	5A	3083	5C	3651	6J	7451	9J
2112	5B	3100	4B	3652	6J	7452	8I
2113	5B	3101	4B	3653	7J	7453	9I
2114	5C	3102	5A	3654	6J	7454	8K
2115	6B	3103	4B	3670	7H	7455	8F
2116	6A	3104	3B	3671	3K	7480	8I
2117	6B	3105	4B	3672	2G	7481	7J
2118	6C	3106	3C	3750	7I	7500	8H
2119	6B	3107	4C	3751	7H	7650	7K
2120	6D	3108	4C	3753	8E	7651	4K
2150	6D	3109	4C	3754	4D	7652	2H
2151	6D	3110	4C	3755	4D	7750	3H
2152	3F	3111	4B	3756	7H	7751	4D
2153	6D	3112	5A	3757	4H	7752	7I
2154	6D	3113	6B	3758	2G	7753	2H
2155	6D	3114	6C	3759	2G	7754	5D
2156	3E	3115	6B	3761	2H	7755	4I
2157	8A	3116	6C	3762	2I	7756	4I
2158	9A	3117	6C	3763	5I	7757	5I
2159	9B	3118	6C	3764	2I	7759	3I
2160	9B	3119	7B	3765	2I	7760	3H
2161	6D	3137	5D	3766	4H	7761	5J
2162	7D	3150	5D	3767	4I	7762	4J
2163	7D	3151	6D	3768	3H	9000	6I
2164	7D	3152	8B	3769	4I	9001	5J
2233	5E	3153	8B	3770	3H	9002	5J
2234	3F	3154	8B	3771	2G	9003	4J
2235	3F	3155	8B	3772	4I	9004	2I
2236	3F	3156	9B	3773	7H	9005	2J
2239	5G	3157	9C	3774	3G	9006	8D
2240	6F	3160	6E	3775	3G		
2241	6G	3227	5E	3776	3G		
2242	5G	3228	3F	3777	5I		
2243	4E	3229	5G	3778	5I		
2244	4G	3230	6F	4550	9F		
2245	4F	3231	6G	5029	7F		
2246	4F	3232	6F	5050	3C		
2247	5H	3233	6G	5051	3C		
2248	3F	3234	6F	5052	3C		
2249	4F	3235	5G	5053	3C		
2250	3G	3236	5F	5054	2D		
2251	7C	3237	6G	5055	2E		
2252	8C	3238	5F	5056	1F		
2253	7B	3239	4G	5057	2D		
2254	7B	3240	4H	5058	2C		
2255	6A	3241	4F	5070	2B		
2256	8B	3242	4F	5071	4D		
2257	7C	3243	4F	5072	3E		
2258	8C	3244	4F	5100	3B		
2259	7C	3245	7F	5101	4C		
2260	8D	3246	4F	5102	5B		
2261	8D	3247	6G	5103	6A		
2262	9D	3248	5F	5104	5A		
2450	9E	3249	5F	5114	5B		
2451	9E	3250	3G	5115	6C		
2452	9K	3251	8D	5116	5D		
2453	9J	3252	8C	5150	7E		
2454	8J	3253	7C	5750	3J		



0006	3H	2455	8K	3254	8C	6051	2E
0007	7A	2456	7G	3255	7C	6100	4B
0010	9G	2457	3I	3256	8C	6101	5B
0011	9D	2458	8E	3257	7C	6102	6B
2050	3B	2459	6H	3258	8C	6248	4E
2051	3C	2460	7G	3259	7D	6249	5E
2052	3C	2461	7I	3260	5I	6250	5I
2053	3D	2462	5I	3261	4H	6263	6F
2054	3C	2500	8H	3262	5H	6450	7J
2055	2C	2501	8H	3264	4H	6451	7G
2057	2C	2650	3I	3265	5H	6452	6I
2058	3E	2651	6J	3450	9K	6501	7I
2059	1E	2652	6J	3451	8K	6502	1I
2060	2E	2653	7J	3452	9K	6503	2J
2063	2C	2654	6J	3453	9K	6750	3J
2064	2E	2655	4K	3454	9J	6751	5J
2065	3D	2656	7K	3455	9J	6752	8I
2066	3C	2657	7J	3456	8J	6753	2G
2067	3D	2673	6H	3457	8J	6754	8I
2068	2E	2674	5H	3458	8J	6755	4H
2069	3E	2680	1G	3459	9I	6756	4I
2070	4E	2750	4J	3460	8K	6757	2I
2071	4E	2751	3G	3461	8K	6758	6G
2072	2F	2752	7H	3462	8K	6759	2B
2080	5C	2753	7H	3463	9D	7014	2F
2081	4D	2754	2K	3464	9D	7050	3D
2100	3B	2755	2H	3480	6I	7080	4C
2101	4B	3023	2F	3481	5I	7100	5C
2102	4B	3050	3B	3482	7I	7102	4B
2103	4A	3051	3C	3483	8J	7150	5D
2104	3B	3052	3E	3484	2I	7151	9C
2105	6B	3054	2D	3502	2H	7152	8B
2106	4B	3055	3D	3503	5I	7248	5G
2107	4C	3056	3E	3504	2I	7249	3F
2108	7C	3057	4E	3512	6H	7250	8C
2109	4B	3081	4C	3513	7F	7251	3G
2110	4A	3082	4D	3514	7F	7450	9K
2111	5A	3083	5C	3651	6J	7451	9J
2112	5B	3100	4B	3652	6J	7452	8I
2113	5B	3101	4B	3653	7J	7453	9I
2114	5C	3102	5A	3654	6J	7454	8K
2115	6B	3103	4B	3670	7H	7455	8F
2116	6A	3104	3B	3671	3K	7480	8I
2117	6B	3105	4B	3672	2G	7481	7J
2118	6C	3106	3C	3750	7I	7500	8H
2119	6B	3107	4C	3751	7H	7650	7K
2120	6D	3108	4C	3753	8E	7651	4K
2150	6D	3109	4C	3754	4D	7652	2H
2151	6D	3110	4C	3755	4D	7750	3H
2152	3F	3111	4B	3756	7H	7751	4D
2153	6D	3112	5A	3757	4H	7752	7I
2154	6D	3113	6B	3758	2G	7753	2H
2155	6D	3114	6C	3759	2G	7754	5D
2156	3E	3115	6B	3761	2H	7755	4I
2157	8A	3116	6C	3762	2I	7756	4I
2158	9A	3117	6C	3763	5I	7757	5I
2159	9B	3118	6C	3764	2I	7759	3I
2160	9B	3119	7B	3765	2I	7760	3H
2161	6D	3137	5D	3766	4H	7761	5J
2162	7D	3150	5D	3767	4I	7762	4J
2163	7D	3151	6D	3768	3H	9000	6I
2164	7D	3152	8B	3769	4I	9001	5J
2233	5E	3153	8B	3770	3H	9002	5J
2234	3F	3154	8B	3771	2G	9003	4J
2235	3F	3155	8B	3772	4I	9004	2I
2236	3F	3156	9B	3773	7H	9005	2J
2239	5G	3157	9C	3774	3G	9006	8D
2240	6F	3160	6E	3775	3G		
2241	6G	3227	5E	3776	3G		
2242	5G	3228	3F	3777	5I		
2243	4E	3229	5G	3778	5I		
2244	4G	3230	6F	4550	9F		
2245	4F	3231	6G	5029	7F		
2246	4F	3232	6F	5050	3C		
2247	5H	3233	6G	5051	3C		
2248	3F	3234	6F	5052	3C		
2249	4F	3235	5G	5053	3C		
2250	3G	3236	5F	5054	2D		
2251	7C	3237	6G	5055	2E		
2252	8C	3238	5F	5056	1F		
2253	7B	3239	4G	5057	2D		
2254	7B	3240	4H	5058	2C		
2255	6A	3241	4F	5070	2B		
2256	8B	3242	4F	5071	4D		
2257	7C	3243	4F	5072	3E		
2258	8C	3244	4F	5100	3B		
2259	7C	3245	7F	5101	4C		
2260	8D	3246	4F	5102	5B		
2261	8D	3247	6G	5103	6A		
2262	9D	3248	5F	5104	5A		
2450	9E	3249	5F	5114	5B		
2451	9E	3250	3G	5115	6C		
2452	9K	3251	8D	5116	5D		
2453	9J	3252	8C	5150	7E		
2454	8J	3253	7C	5750	3J		

MAIN PANEL BF + DECK PART



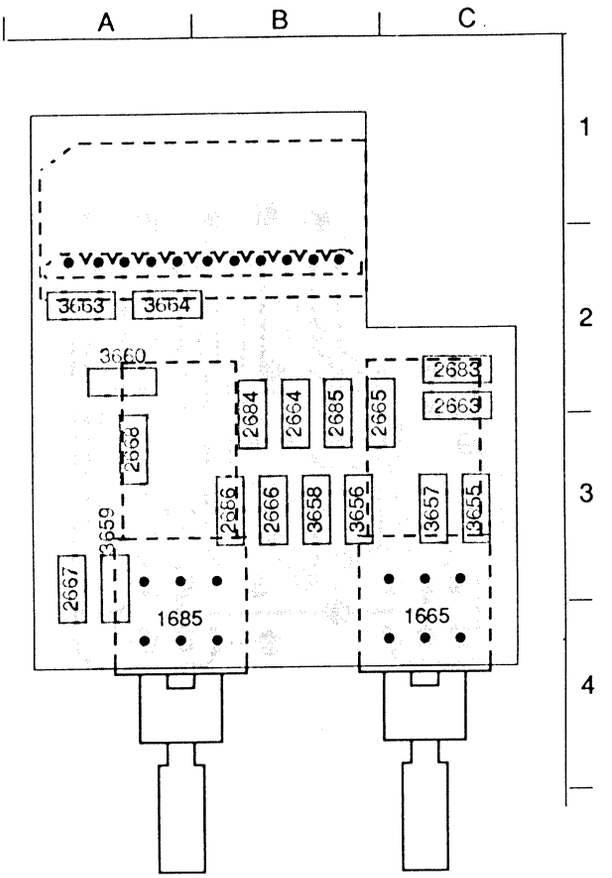


22DC460/75
22DC460/75E

* 3264:4K7 FOR DC460/75E

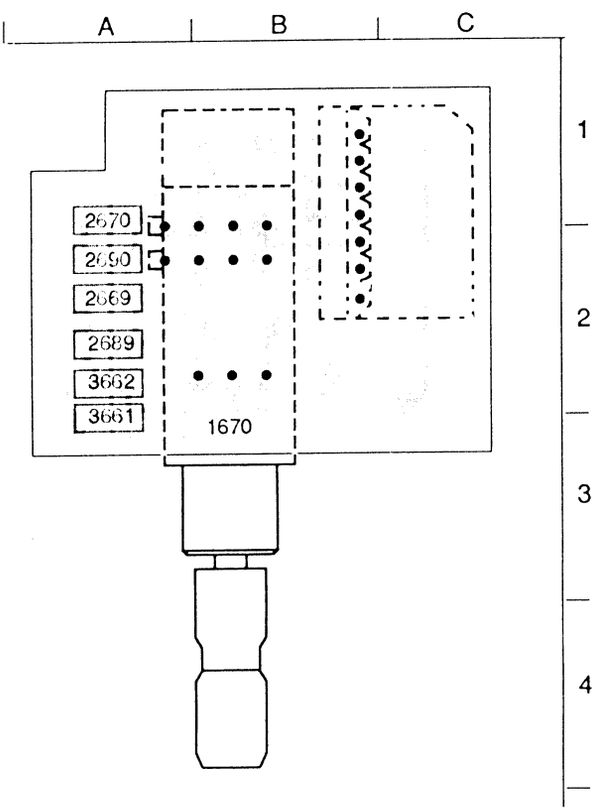
1665	I12
1665	F12
1670	G11
1675	H10
1685	H 9
1685	H 9
2250	D 1
2251	B 5
2252	E 5
2253	C 5
2254	D 5
2255	C 5
2256	C 5
2257	B 7
2258	E 7
2259	B 7
2260	E 7
2261	C 6
2262	E 3
2458	F 8
2650	J15
2651	F14
2652	G14
2653	J14
2654	I14
2655	E14
2656	H14
2657	E13
2663	J12
2664	G12
2665	I12
2666	F12
2667	G 9
2668	H 9
2669	I11
2670	F11
2671	J11
2672	F11
2673	I 8
2674	G 8
2680	F 9
2683	J12
2684	G12
2685	I12
2686	F12
2689	I11
2690	G11
3250	C 1
3251	A 5
3252	E 5
3253	A 6
3254	E 6
3255	A 6
3256	E 6
3257	B 7
3258	E 7
3259	B 7
3260	D 3
3261	E 3
3262	E 4
3264	C 3
3265	E 2
3651	F14
3652	H14
3653	J14
3654	I14
3655	G12
3656	I12
3658	F12
3659	G 8
3660	H 8
3661	G10
3662	I10
3663	G 9
3664	H 9
3670	F 8
3671	E 9
3672	F 9
3673	F11
3674	J11
6250	E 3
6263	C 2
7250	D 6
7251	C 2
7650	I13
7651	G13
7652	F 9
9000	H10
9001	H13
9002	H14
9003	E14

Tone PCB Layout



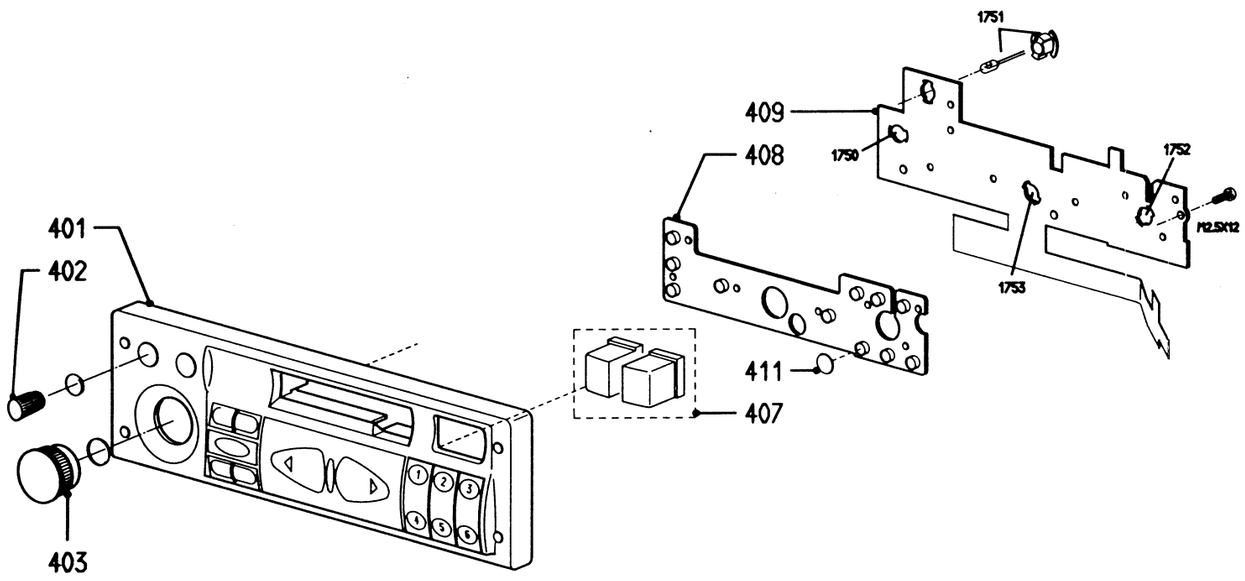
2663	C2
2664	B2
2665	C2
2666	B3
2667	A3
2668	A3
2683	C2
2684	B2
2685	B2
3655	C3
3656	B3
3657	C3
3658	B3
3659	A3
3660	A2
3663	A2
3664	A2

Volume PCB Layout

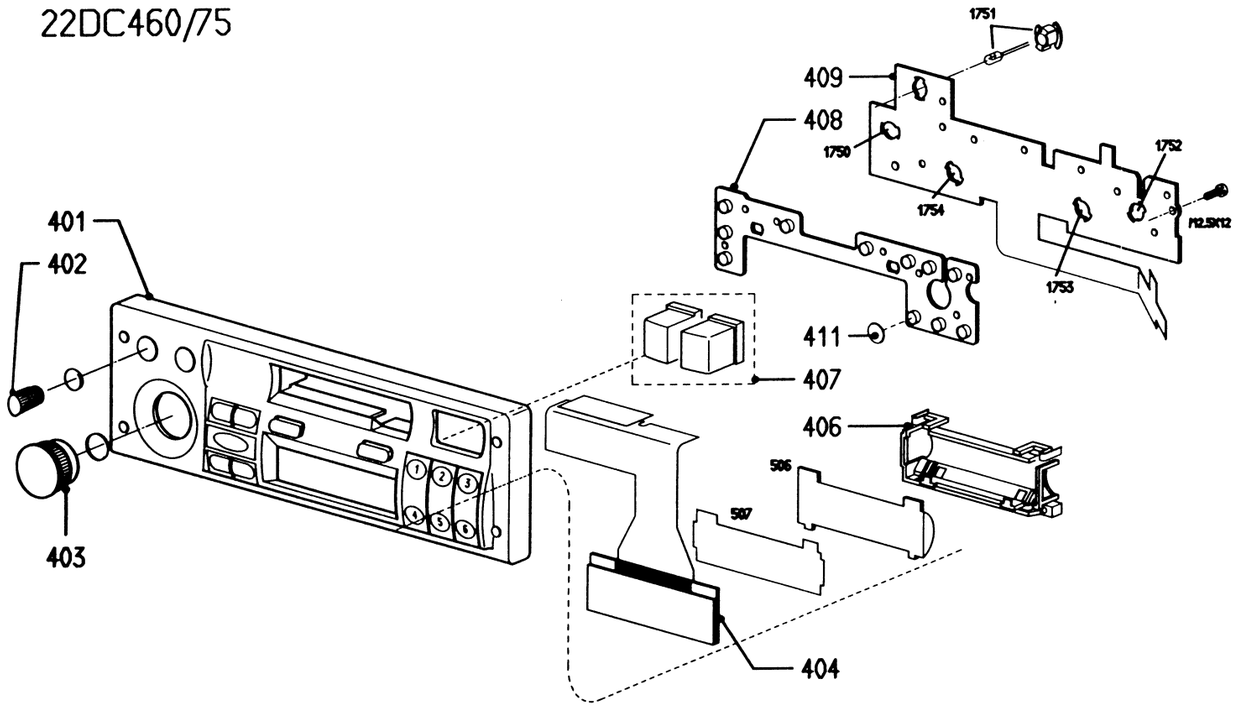


2669	A1
2670	A2
2689	A2
2690	A2
3661	A2
3662	A2

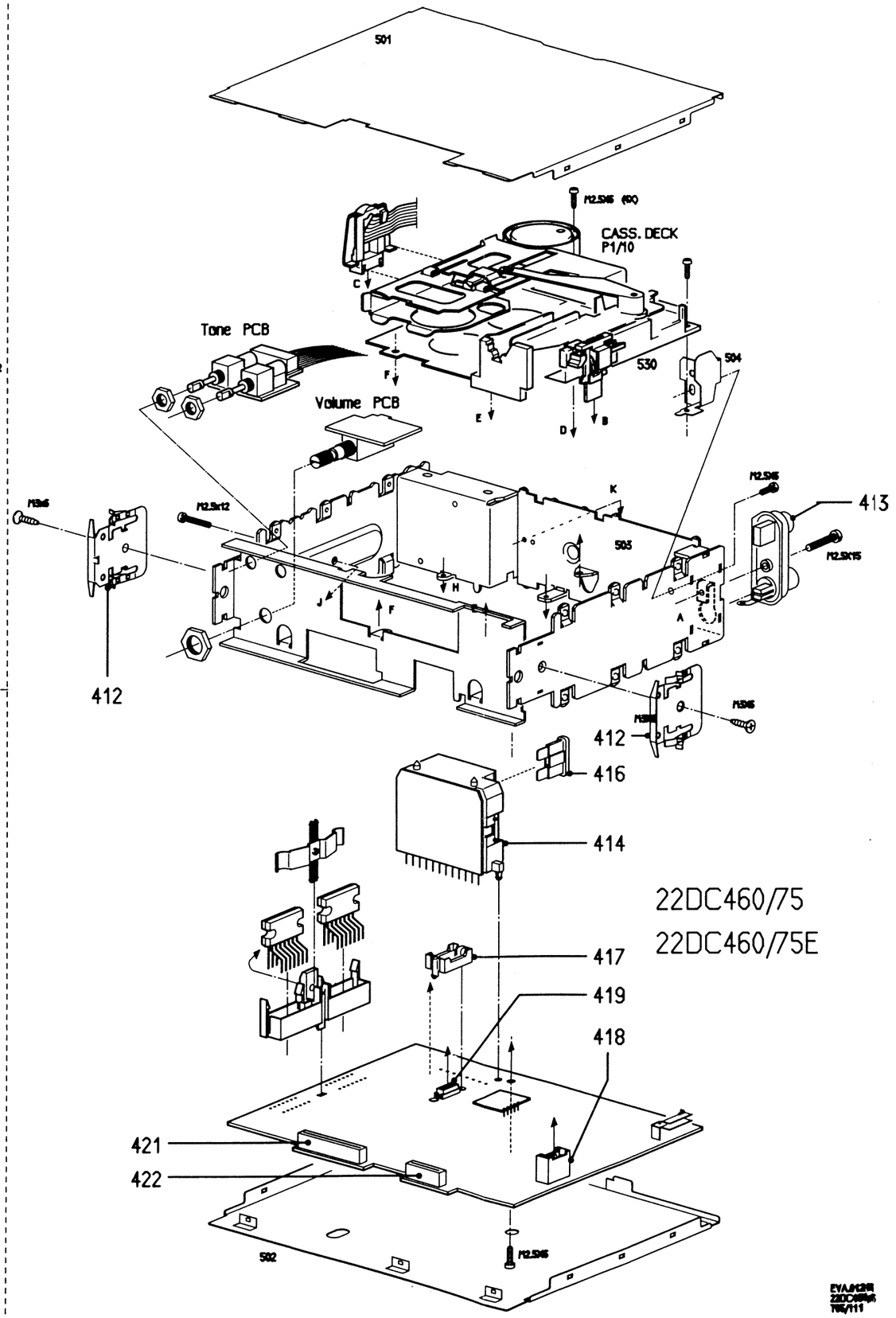
22DC460/75E



22DC460/75

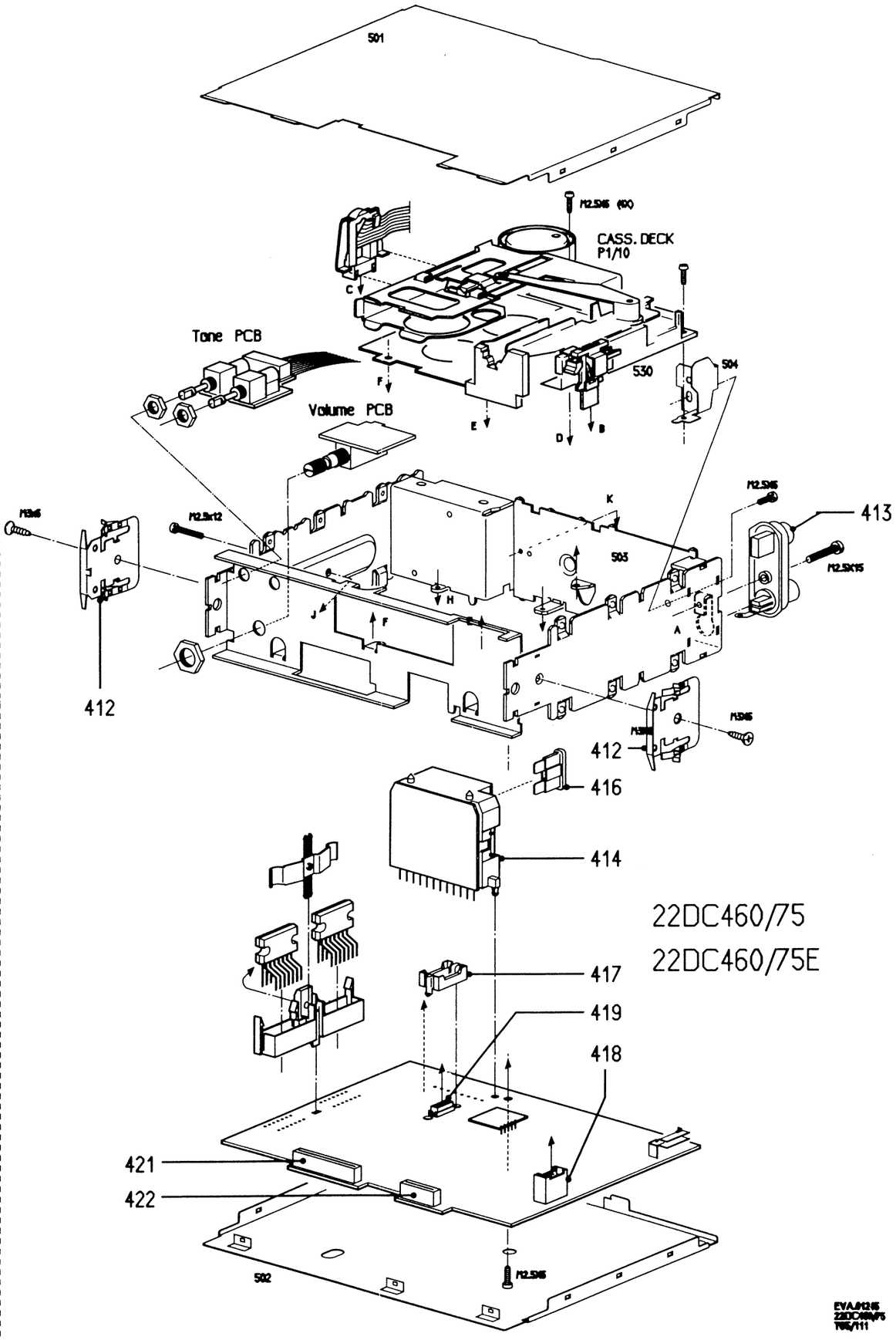


10 a



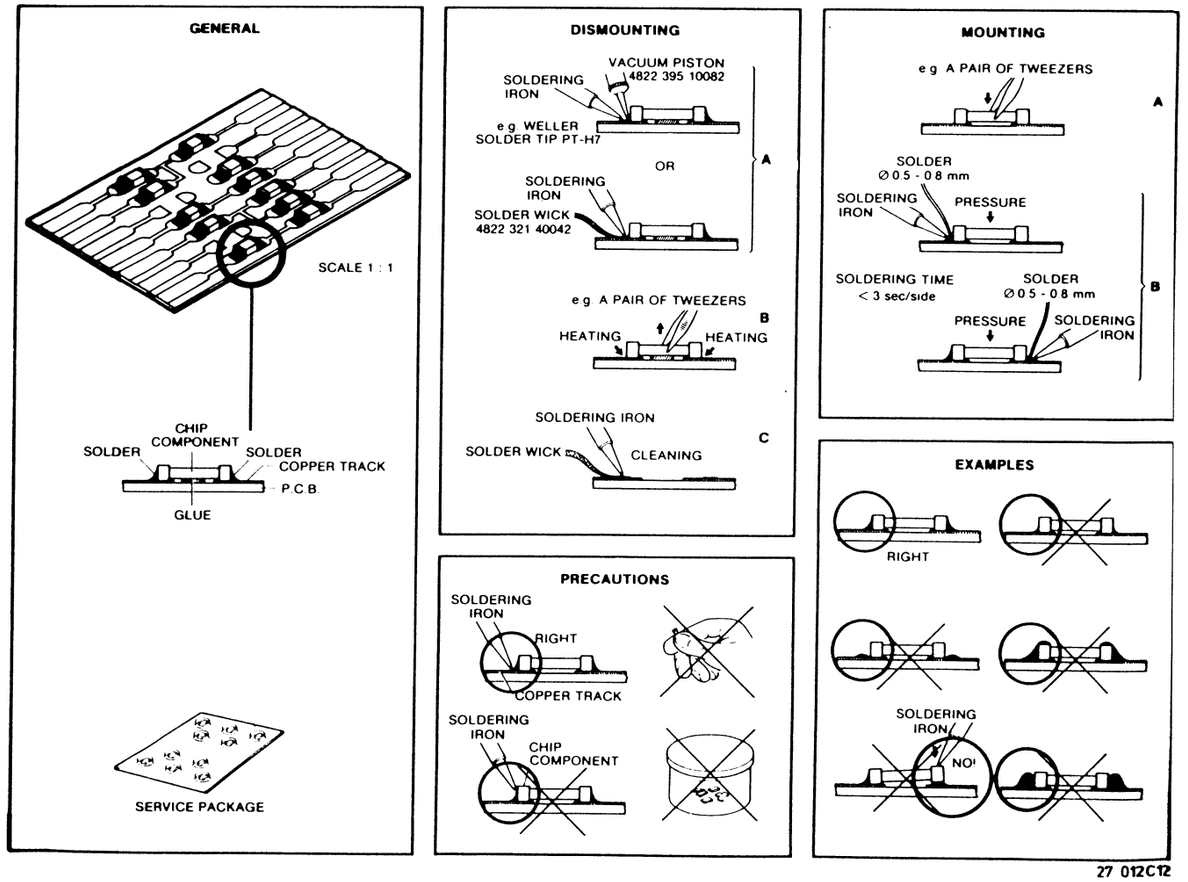
22DC460/75
22DC460/75E

10 b



401	4822 459 50642	ORNAMENTAL PLATE FOR 460/75E
401	4822 459 50639	ORNAMENTAL PLATE FOR 460/75
402	4822 413 31664	TONE (2X)
403	4822 413 41661	ON/OFF
404	4822 130 91025	DISPLAY
406	4822 404 21179	SUPPORT LCD
407	4822 410 61523	DECK BUTTON SET
408	4822 410 61547	BUTTON KEYB ASSY FOR 460/75E
408	4822 410 61518	BUTTON KEYB ASSY FOR 460/75
409	4822 320 50237	FOIL FLEX ASSY FOR 460/75E
409	4822 320 50235	FOIL FLEX ASSY FOR 460/75
411	4822 466 10609	SPACER SWITCHING
412	4822 492 70918	FIX SET IN DASHBOARD
413	4822 532 30464	AERIAL BUSH ASSY
414	4822 290 61053	CONNECTOR BLOCK
416	4822 071 25002	FUSE
417	4822 256 91563	CATCH FRAME
418	4822 267 40818	CONNECTOR HEAD 5 PIN
419	4822 267 50872	CONNECTOR DECK 8 PIN
421	5322 267 60282	CONNECTOR FOIL 25 PINS FOR 460/75 ONLY
422	4822 267 50815	CONNECTOR 11 PINS

HANDLING CHIP COMPONENTS



27 012C12

Miscellaneous		
1665	4822 100 30162	TONE POT 2X100K
1670	4822 100 11812	VOL POT 100K + 50K
1685	4822 100 30162	TONE POT 2X100K
1750	4822 134 41084	LAMP 12V 100MA
1751	4822 134 41084	LAMP 12V 100MA
1752	4822 134 41084	LAMP 12V 100MA
1753	4822 134 41084	LAMP 12V 100MA
1754	4822 134 41084	LAMP 12V 100MA DC460/75
⊣⊢		
2050	5322 122 31647	1NF10% X7R 63V
2051	5322 122 32286	3,3PF 5% NP0 50V
2052	5322 122 32287	4,7PF 5% NP0 50V
2053	5322 122 32965	18PF 5% NPO 50V
2054	4822 122 33216	270PF 5% NP0 50V
2055	4822 122 33216	270PF 5% NP0 50V
2057	4822 122 33177	10NF 20% X7R 50V
2058	4822 122 31947	100NF 20%Y5V 63V
2059	4822 124 41796	22µF 20% 16V
2060	4822 122 33216	270PF 5% NP0 50V
2063	4822 124 41795	1µF 20% 50V
2064	4822 124 40272	33µF 20% 16V
2065	4822 122 31947	100NF 20%Y5V 63V
2066	4822 122 33213	22PF 5% NP0 0805
2067	4822 122 31947	100NF 20% Y5V 63V
2068	4822 124 41506	47µF 20% 16V
2069	4822 122 33339	4,7NF 10% X7R 50V 0805
2070	4822 122 33339	4,7NF 10% X7R 50V 0805
2071	4822 122 31947	100NF 20% Y5V 63V
2072	4822 122 32442	10NF 50V
2080	5322 122 31647	1NF 10% X7R 63V
2081	4822 122 33837	1NF 10% X7R 50V
2100	4822 122 31971	10PF 10% 50V
2101	4822 126 10205	6PF NP0 50V
2102	4822 126 10205	6PF NP0 50V
2103	4822 122 33837	1NF10%X7R 50V
2104	4822 122 33177	10NF 20% X7R 50V
2105	4822 122 33177	10NF 20% X7R 50V
2106	4822 122 33837	1NF10%X7R 50V
2107	4822 122 33177	10NF 20% X7R 50V
2108	4822 122 33837	1NF 10% X7R 50V
2109	5322 122 32448	10PF 5% 50V
2110	4822 122 33837	1NF 10% X7R 50V
2111	5322 122 32448	10PF 5% 50V
2112	5322 122 32965	18PF 5% NPO 50V
2113	5322 122 32448	10PF 5% 50V
2114	4822 122 31947	100NF 20% Y5V 63V
2115	4822 126 10205	6PF NP0 50V
2116	4822 122 33635	2NF 20% 50V
2117	4822 122 32442	10NF 50V
2118	4822 122 32442	10NF 50V
2119	4822 122 33216	270PF 5% NP0 50V
2120	4822 122 33514	68PF 5% NP0 50V
2150	4822 122 33555	22NF10%
2151	4822 122 33555	22NF10%
2152	4822 124 23624	47µF 20% 16V
2153	4822 122 33555	22NF 10%
2154	4822 124 41795	1µF 20% 50V
2155	4822 122 31947	100NF 20%Y5V 63V
2156	4822 122 33555	22NF 10%
2157	4822 124 22711	100µF 20% 10V
⊣⊢		
2158	4822 122 33555	22NF 10%
2159	4822 122 32542	47NF10% X7R 63V
2160	5322 124 22626	2,2µF 25V
2161	4822 122 33514	68PF 5% NP0 50V
2162	4822 122 33837	1NF 10%X7R 50V
2163	4822 122 33555	22NF 10%
2164	4822 122 33515	82PF 5% NP0 63V
2233	4822 122 33181	150PF 5% NP0 50V
2234	4822 122 33496	100NF10% X7R 63V
2235	4822 122 33496	100NF10% X7R 63V
2236	4822 124 23624	47µF 20% 16V
2239	4822 122 31947	100NF 20% Y5V 63V
2240	4822 122 31947	100NF 20% Y5V 63V
2241	4822 122 33893	18NF 10% X7R 63V
2242	4822 122 33893	18NF 10% X7R 63V
2243	4822 124 41873	4,7µF 20% 35V
2244	5322 126 10511	1NF 5% NP0 50V
2245	4822 124 41794	0,33µF 20% 50V
2246	4822 124 41794	0,33µF 20% 50V
2247	4822 124 41554	220µF 20% 10V
2248	4822 124 41795	1µF 20% 50V
2249	4822 122 31947	100NF 20% Y5V 63V
2250	4822 122 31947	100NF 20% Y5V 63V
2251	4822 124 23624	47µF 20% 16V
2252	4822 124 23624	47µF 20% 16V
2253	5322 122 32268	470PF 10% 50V
2254	5322 122 32268	470PF 10% 50V
2255	4822 124 40244	2,2µF 20% 63V
2256	4822 124 40244	2,2µF 20% 63V
2257	4822 122 33177	10NF 20% X7R 50V
2258	4822 122 33177	10NF 20% X7R 50V
2259	4822 124 41795	1µF 20% 50V
2260	4822 124 41795	1µF 20% 50V
2261	4822 124 23432	100µF 20% 10V
2262	4822 124 41796	22µF 20% 16V
2450	4822 122 33514	68PF 5% NP0 50V
2451	4822 122 33514	68PF 5% NP0 50V
2452	4822 122 31947	100NF 20% Y5V 63V
2453	4822 122 33496	100NF 10% X7R 63V
2454	4822 122 33496	100NF 10% X7R 63V
2455	4822 122 33496	100NF 10% X7R 63V
2456	4822 122 33177	10NF 20% X7R 50V
2457	4822 122 31947	100NF 20% Y5V 63V
2458	4822 122 33837	1NF 10% X7R 50V
2459	4822 124 41554	220µF 20% 10V
2460	4822 122 33837	1NF 10% X7R 50V
2461	4822 124 41506	47µF 20% 16V
2462	4822 124 21473	150µF 20% 16V
2500	4822 124 23624	47µF 20% 16V
2501	4822 122 33555	22NF 10%
2650	4822 124 40184	1000µF 20% 10V
2651	4822 122 33339	4,7NF 10% X7R 50V 0805
2652	4822 122 33339	4,7NF 10% X7R 50V 0805
2653	4822 122 33339	4,7NF 10% X7R 50V 0805
2654	4822 122 33339	4,7NF 10% X7R 50V 0805
2655	4822 122 31947	100NF 20% Y5V 63V
2656	4822 122 31947	100NF 20% Y5V 63V
2657	4822 124 41506	47µF 20% 16V
2663	4822 122 31947	100NF 20% Y5V 63V
2664	4822 122 31947	100NF 20% Y5V 63V
2665	4822 122 31947	100NF 20% Y5V 63V

2666	4822 122 31947	100NF 20% Y5V 63V
2667	4822 122 33555	22NF 10%
2668	4822 122 33555	22NF 10%
2669	4822 122 33496	100NF 10% X7R 63V
2670	4822 122 33496	100NF 10% X7R 63V
2673	4822 124 41794	0,33µF 20% 50V
2674	4822 124 41794	0,33µF 20% 50V
2680	4822 124 41873	4,7µF 20% 35V
2683	4822 122 31947	100NF 20% Y5V 63V
2684	4822 122 31947	100NF 20% Y5V 63V
2685	4822 122 31947	100NF 20% Y5V 63V
2686	4822 122 31947	100NF 20%Y5V 63V
2689	4822 122 33496	100NF 10%X7R 63V
2690	4822 122 33496	100NF 10%X7R 63V
2750	4822 124 22412	2200µF 20% 16V
2751	4822 124 23624	47µF 20% 16V
2752	4822 124 22711	100µF 20% 10V
2753	4822 122 31947	100NF 20% Y5V 63V
2754	5322 122 31647	1NF 10% X7R 63V
2755	4822 121 42408	220NF 5% 63V

3023	4822 051 20471	470Ω 5% 0,1W
3050	4822 051 20561	560Ω 5% 0,1W
3051	4822 051 20471	470Ω 5% 0,1W
3052	4822 116 52234	100K 5% 0,5W
3054	4822 051 20102	1K 5% 0,1W
3055	4822 051 20102	1K 5% 0,1W
3056	4822 051 20103	10K 5% 0,1W
3081	4822 051 20563	56K 5% 0,1W
3082	4822 051 20272	2K70 5% 0,1W
3083	4822 100 11683	2K30 5%LIN 0.2W
3100	4822 051 20184	180K 5% 0,1W
3101	4822 051 20184	180K 5% 0,1W
3102	4822 051 20271	270Ω 5% 0,1W
3103	4822 051 20122	1K20 5% 0,1W
3104	4822 051 20104	100K 5% 0,1W
3105	4822 051 20229	22Ω 5% 0,1W
3106	4822 051 20472	4K70 5% 0,1W
3107	4822 116 52234	100K 5% 0,5W
3108	4822 051 20184	180K 5% 0,1W
3109	4822 051 20473	47K 5% 0,1W
3110	4822 051 20229	22Ω 5% 0,1W
3111	4822 051 20229	22Ω 5% 0,1W
3112	4822 051 20104	100K 5% 0,1W
3113	4822 051 20104	100K 5% 0,1W
3114	4822 100 20589	20K LIN 30%
3115	4822 051 20473	47K 5% 0,1W
3116	4822 051 20274	270K 5% 0,1W
3117	4822 051 20151	150Ω 5% 0,1W
3118	4822 051 20229	22Ω 5% 0,1W
3119	4822 051 20223	22K 5% 0,1W
3137	4822 051 20151	150Ω 5% 0,1W
3150	4822 051 20181	180Ω 5% 0,1W
3151	4822 051 20222	2K20 5% 0,1W
3152	4822 050 21003	10K 1% 0,6W
3153	4822 051 20182	1K80 5% 0,1W
3154	4822 051 20101	100Ω 5% 0,1W
3155	4822 051 20222	2K20 5% 0,1W
3156	4822 051 20102	1K 5% 0,1W
3157	4822 050 15601	560Ω 1% 0,4W
3160	4822 100 11163	100K 30%LIN 0,1W

3227	4822 051 20561	560Ω 5% 0,1W
3228	4822 051 20109	10Ω 5% 0,1W
3229	4822 051 20104	100K 5% 0,1W
3230	4822 051 20104	100K 5% 0,1W
3232	4822 050 16804	680K 1% 0,4W
3233	4822 050 22203	22K 1% 0,6W
3234	4822 050 22203	22K 1% 0,6W
3235	4822 051 20393	39K 5% 0,1W
3236	4822 051 20393	39K 5% 0,1W
3237	4822 051 20472	4K70 5% 0,1W
3238	4822 051 20472	4K70 5% 0,1W
3240	4822 100 11679	4.7K 30%LIN 0.2W
3241	4822 051 20473	47K 5% 0,1W
3242	4822 051 20102	1K 5% 0,1W
3243	4822 051 20689	68Ω 5% 0,1W
3244	4822 116 52234	100K 5% 0,5W
3245	4822 051 20103	10K 5% 0,1W
3246	4822 051 20184	180K 5% 0,1W
3248	4822 116 80659	1K5 5% 0,5W
3249	4822 051 20122	1K20 5% 0,1W
3250	4822 051 20222	2K20 5% 0,1W
3251	4822 051 20103	10K 5% 0,1W
3252	4822 051 20103	10K 5% 0,1W
3253	4822 051 20101	100Ω 5% 0,1W
3254	4822 051 20101	100Ω 5% 0,1W
3255	4822 051 20123	12K 5% 0,1W
3256	4822 051 20123	12K 5% 0,1W
3257	4822 051 20274	270K 5% 0,1W
3258	4822 051 20274	270K 5% 0,1W
3259	4822 116 52215	220Ω 5% 0,5W
3260	4822 051 20102	1K 5% 0,1W
3261	4822 051 20472	4K70 5% 0,1W
3262	4822 051 20472	4K70 5% 0,1W
3264	4822 051 20103	10K 5% 0,1W
3264	4822 051 20472	4K7 5% 0805
3265	4822 051 20223	22K 5% 0,1W
3450	4822 051 20103	10K 5% 0,1W
3451	4822 051 20223	22K 5% 0,1W
3452	4822 051 20102	1K 5% 0,1W
3453	4822 051 20102	1K 5% 0,1W
3454	4822 051 20393	39K 5% 0,1W
3455	4822 051 20103	10K 5% 0,1W
3456	4822 051 20274	270K 5% 0,1W
3457	4822 051 20274	270K 5% 0,1W
3458	4822 051 20103	10K 5% 0,1W
3459	4822 051 20103	10K 5% 0,1W
3460	4822 051 20103	10K 5% 0,1W
3461	4822 051 20224	220K 5% 0,1W
3462	4822 051 20224	220K 5% 0,1W
3463	4822 051 20103	10K 5% 0,1W
3464	4822 051 20103	10K 5% 0,1W
3480	4822 050 21003	10K 1% 0,6W
3481	4822 051 20184	180K 5% 0,1W
3482	4822 051 20223	22K 5% 0,1W
3483	4822 051 20393	39K 5% 0,1W
3484	4822 051 20102	1K 5% 0,1W
3502	4822 051 20331	300Ω 5% 0805
3503	4822 051 20331	300Ω 5% 0805
3504	4822 051 20331	300Ω 5% 0805
3512	4822 051 20103	10K 5% 0,1W

3513	4822 051 20103	10K 5% 0,1W
3514	4822 050 21003	10K 1% 0,6W
3651	4822 051 20478	4Ω70 5% 0,1W
3652	4822 051 20478	4Ω70 5% 0,1W
3653	4822 051 20478	4Ω70 5% 0,1W
3654	4822 051 20478	4Ω70 5% 0,1W
3655	4822 051 20183	18K 5% 0,1W
3656	4822 051 20183	18K 5% 0,1W
3657	4822 051 20183	18K 5% 0,1W
3658	4822 051 20183	18K 5% 0,1W
3659	4822 051 20182	1K80 5% 0,1W
3660	4822 051 20182	1K80 5% 0,1W
3661	4822 051 20222	2K20 5% 0,1W
3662	4822 051 20222	2K20 5% 0,1W
3663	4822 051 20392	3K90 5% 0,1W
3664	4822 051 20392	3K90 5% 0,1W
3670	4822 051 20224	220K 5% 0,1W
3671	4822 051 20393	39K 5% 0,1W
3672	4822 051 20472	4K70 5% 0,1W
3750	4822 051 20272	2K70 5% 0,1W
3751	4822 051 20101	100Ω 5% 0,1W
3753	4822 116 81849	220K 5%
3754	4822 051 20103	10K 5% 0,1W
3755	4822 051 20332	3K30 5% 0,1W
3756	4822 051 20181	180Ω 5% 0,1W
3757	4822 051 20561	560Ω 5% 0,1W
3758	4822 051 20561	560Ω 5% 0,1W
3759	4822 051 20101	100Ω 5% 0,1W
3761	4822 116 40216	4Ω7 PTC
3762	4822 051 20104	100K 5% 0,1W
3763	4822 051 20393	39K 5% 0,1W
3764	4822 051 20104	100K 5% 0,1W
3765	4822 051 20393	39K 5% 0,1W
3766	4822 051 20393	39K 5% 0,1W
3767	4822 051 20561	560ΩΩ 5% 0,1W
3768	4822 116 52226	560E 5% 0,5W
3769	4822 116 52226	560E 5% 0,5W
3770	4822 050 21003	10K 1% 0,6W
3771	4822 051 20103	10K 5% 0,1W
3772	4822 051 20393	39K 5% 0,1W
3773	4822 051 20103	10K 5% 0,1W
3774	4822 051 20103	10K 5% 0,1W
3775	4822 051 20182	1K80 5% 0,1W
3776	4822 051 20182	1K80 5% 0,1W
3777	4822 051 20102	1K 5% 0,1W
3778	4822 051 10008	0Ω 5% 0,25W

4550	4822 242 80369	4,500MHZ
5029	4822 157 52007	4.7µH 10%
5050	4822 152 20677	10µH 10%
5051	4822 152 20677	10µH 10%
5052	4822 157 60122	4.7µH 10%
5053	4822 152 20678	33µH10%
5054	4822 157 53338	1000 µH 10%
5055	4822 156 11085	AM COIL
5056	4822 152 20678	33µH10%
5057	4822 156 11084	AM-IF COIL
5058	4822 152 20679	68µH 10%
5070	4822 242 72076	10T77BB(10,7MHZ)
5071	4822 242 72076	10T77BB(10,7MHZ)

5072	4822 242 71883	SFE10,7MS318-D
5100	4822 156 10666	RF COIL
5101	4822 157 51999	10µH10%
5102	4822 157 53767	HF FM
5103	4822 157 52227	RF COIL
5104	4822 153 50257	IF-FM COIL
5114	4822 242 80367	SFE10.7MS3WK3-A TF21
5115	4822 242 80367	SFE10.7MS3WK3-A TF21
5116	4822 242 80368	SFE10.7MS2 W4A-TF21
5150	4822 156 11141	COIL
5750	4822 152 20681	CHOKE CU15B2

6051	4822 130 82596	BB419
6100	4822 130 81643	BB804
6101	4822 130 81643	BB804
6102	4822 130 81643	BB804
6248	4822 130 30621	1N4148
6249	4822 130 31253	BZX79-C2V4
6250	4822 130 30621	1N4148
6263	4822 130 34233	BZX79-C5V1
6450	4822 130 31253	BZX79-C2V4
6451	5322 130 31928	BAS16
6452	4822 130 30621	1N4148
6501	4822 130 30621	1N4148
6502	5322 130 31928	BAS16
6503	5322 130 30691	BAW56
6750	5322 130 30684	1N4002
6751	4822 130 30621	1N4148
6752	4822 130 34233	BZX79-C5V1
6753	4822 130 30862	BZX79-B9V1
6754	4822 130 34173	BZX79-B5V6
6755	5322 130 30684	1N4002
6756	5322 130 30684	1N4002
6757	5322 130 30684	1N4002
6758	4822 130 30621	1N4148

7014	4822 130 41482	BF410C
7050	4822 209 72247	TEA6200/V2
7080	4822 130 44195	BF494
7100	4822 209 73069	LA1177
7102	4822 130 61183	BF992/01
7150	4822 209 63697	TDA1596/V3
7151	4822 130 44246	BC549C
7152	4822 130 44246	BC549C
7248	4822 209 73712	TEA5581/N4
7249	4822 214 51676	THIFI IAC7
7250	4822 209 81928	UPC1228H
7251	5322 130 61677	BC875
7450	4822 130 60511	BC847B
7451	5322 130 41983	BC858B
7452	5322 130 41983	BC858B
7453	5322 130 41983	BC858B
7454	4822 130 60511	BC847B
7455	4822 209 30416	MAIN OTP 460/75E
7455	4822 209 30424	MAIN OTP 460/75
7480	4822 130 60511	BC847B
7481	4822 130 42614	BC849C
7500	4822 900 10161	EEPROM SECURITY (OD E
7650	4822 209 30407	TDA1519AQ/N2
7651	4822 209 30407	TDA1519AQ/N2

7652	4822 130 60511	BC847B
7750	4822 130 62837	ON4694
7751	5322 130 60068	BC558C
7752	4822 130 44257	BC547
7753	4822 130 60511	BC847B
7754	4822 130 44257	BC547
7755	5322 130 41983	BC858B
7756	4822 130 44283	BC636
7757	4822 130 44121	BC338
7759	4822 130 62651	ON4414
7760	4822 130 40941	BC558
7761	4822 130 60511	BC847B
7762	4822 130 42614	BC849C

Technician's remarks

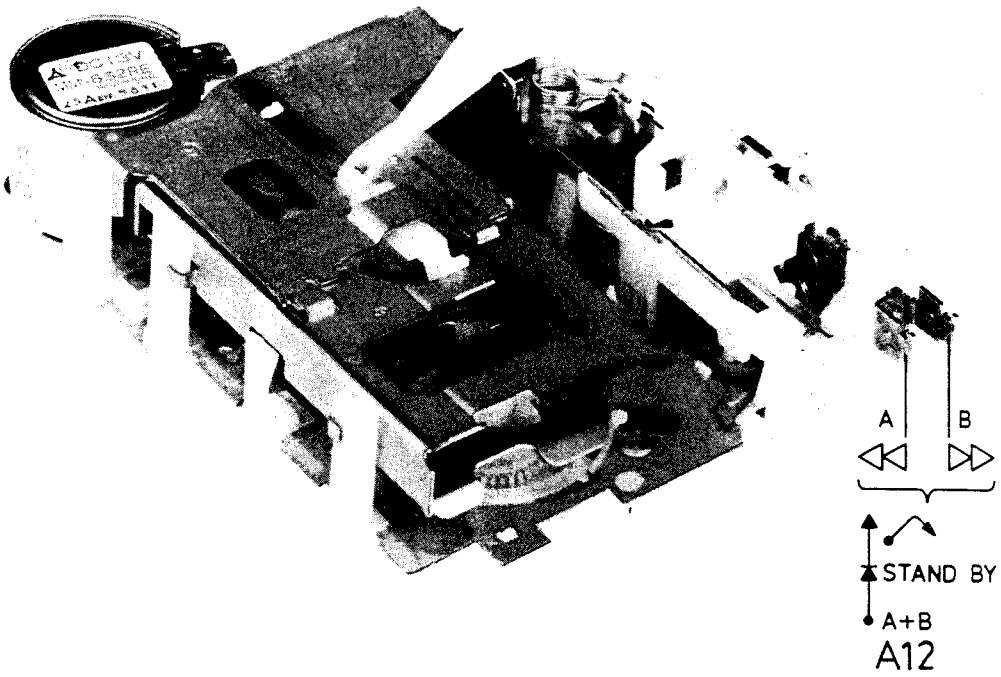
Auto cassette deck P1

Service
Service
Service

Version 4P

Service Manual

12 V



GB

SPECIFICATION

Tape speed	: 4.76 cm/sec. ± 2% (10-45°C)
Working voltage	: 8.4-15 V
Wow and flutter	: ≤ 0.3% (10-45°C)
Crosstalk	: ≥ 35 dB (1 kHz)
Fast-wind time (C60)	: ≤ 120 sec.
Number of tracks	: 2 x 2

D

SPEZIFIKATION

Bandgeschwindigkeit	: 4,76 cm/s ± (10-45°C)
Arbeitsspannung	: 8,4-15 V
Gleichlaufschwankungen	: ≤ 0,3% (10-45°C)
Uebersprechen	: ≥ 35 dB (1kHz)
Umspuldauer (C60)	: ≤ 120 sec.
Spurenzahl	: 2x2

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OPERATION OF TAPE TRANSPORT (Figs. 1 ... 5)

In the aforementioned Figures arrows indicate the movements made by the parts to accomplish a definite operation.
The appended tables show the sequence of the movements as they should be read in the Figures.
For this, the following system has been adopted:

1 → 3 : movement of two different parts
  → 2

1 → 2 : movement of a part composed of several pieces, which, for improved clarity of
  → 2a the Figure, is drawn at different places (e.g. friction).

Fig. 1 indicates the initial position
Figs. 2 ... 5 show the situation at the end of the sequence of movements starting from the situation shown in Fig. 1 (cassette inserted; tape transport in PLAY position).

MAINTENANCE

It is recommended to clean the tape transport and lubricate the principal points at regular intervals.

1. To be cleaned with alcohol or spirit

- playback head
- capstan
- pressure roller
- pulley

To clean head, pressure roller and capstan it is also possible to use a drop-in cleaning cassette (SBC114-4822 389 20015).

2. Lubricating instructions

- See exploded view 41207E.

SERVICING HINTS

In a few places parts are locked by synthetic bosses. To be able to demount these parts, the bosses have to be bent, displaced, etc.
Gearwheel 128b and pressure roller bracket 119 are attached to the spindles by means of a snap connection. These parts can be demounted with a screwdriver.
If gearwheel 128b has to be replaced, the corresponding bracket 128a should be replaced also.
For replacement of the various parts see Figs. 6 ... 11.

ADJUSTMENTS AND CHECKS

Measuring equipment required

- Universal test cassette	SBC419-4822 397 30069
- Universal test cassette	SBC420-4822 397 30071
- Friction test cassette	4822 395 30054
- AC millivoltmeters	
- Spring scale 3-55 gr	
- Wow-and flutter meter	

1. Azimuth (Fig. 12)

- Apply a 4 Ω load to both loudspeaker outputs.
- Connect an AC millivoltmeter across both loudspeaker outputs.
- Play the 10 kHz signal of test cassette SBC419 or SBC420.
- Adjust screw A for the average of the max. output voltages.
- The maximum allowed difference between both channels is 4 dB.

2. Play take-up torque and supplying reel drag

- Insert the friction test cassette.
  The play take-up torque should be 55 to 70 g.cm, measured after a 2-minute run-in time.
- The supplying reel drag should be 4.5-7.5 g.cm.
- In case of deviating values, the play take-up torque or supplying reel drag should be replaced.
- The fast wind torque should be 80-130 gcm (with dry weather: low value; with humid weather: high value). Too high a value can be offset by slightly pressing in spring leaf 137a on the 3 ends with a blunt plastic rod.

3. Pressure roller 119

- Check acc. to Fig. 13.

The pressure of the pressure roller cannot be adjusted; in case of a deviating value spring 172 should be replaced.

4. Wow and flutter/tape speed

This check should be performed on a complete car radio. Proceed as follows:
- Connect wow-and-flutter meter to loudspeaker outputs.
- Insert test cassette SBC419 or SBC420 and play the 3150 Hz signal.
- The wow-and-flutter value should be max. 0.3%.
- The tape speed should be 4.76 cm/sec ± 2%.
  The speed can be adjusted with screw B (Fig. 12).

In case of excessive wow-and-flutter values the following components should be checked for correct working (adjustment).
- motor 132
- pressure roller 119
- friction clutch 103
- flywheel 137
- belt 117
- bearing 113. First allow the new bearing to "run in" upon replacement (insert flywheel at a small angle and allow it to make some quick turns).
- disc 104.

5. Flywheel 137

- See Fig. 14.

6. Bearing 118

- Set in such a way that both bosses are situated in the middle of the slots in bearing plate 524.

BELT 117, FLYWHEEL 137

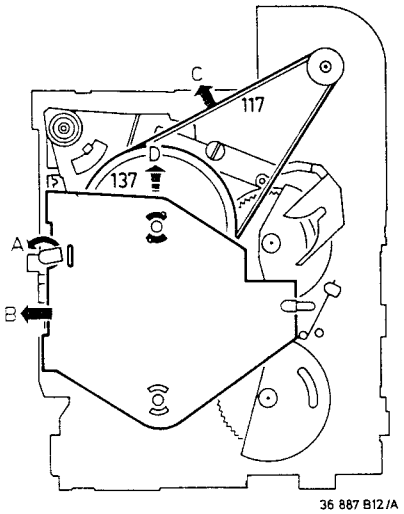


Fig. 6

PRESSURE ROLLER 119, HEAD 119

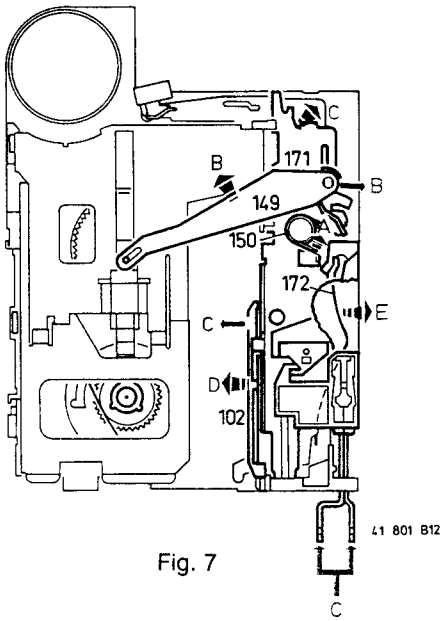


Fig. 7

HEAD BRACKET 124

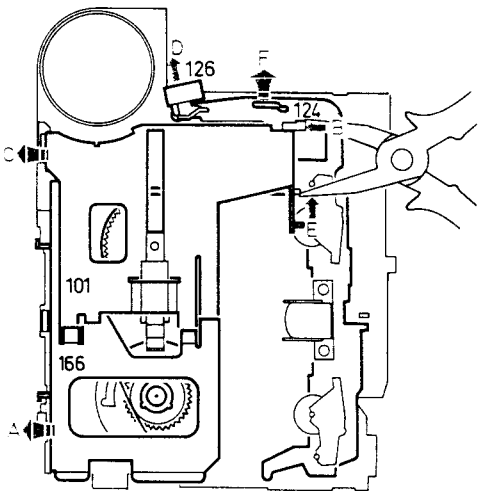


Fig. 8

CLUTCH 103, CARRIER 141

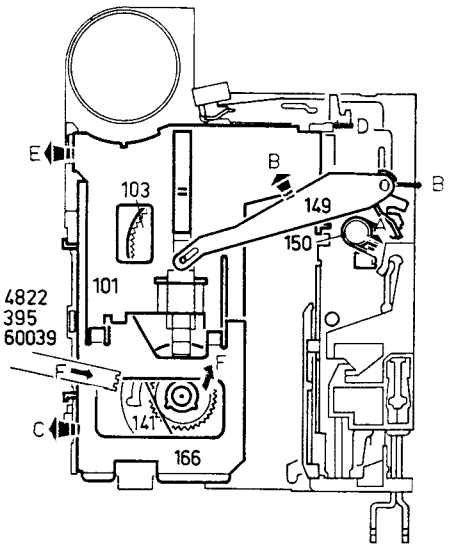


Fig. 9

COG WHEELS 109, 128

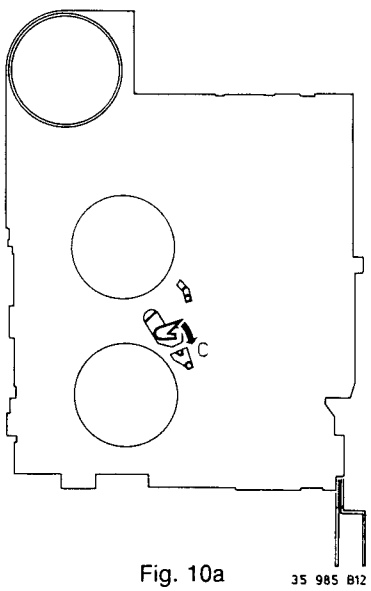


Fig. 10a

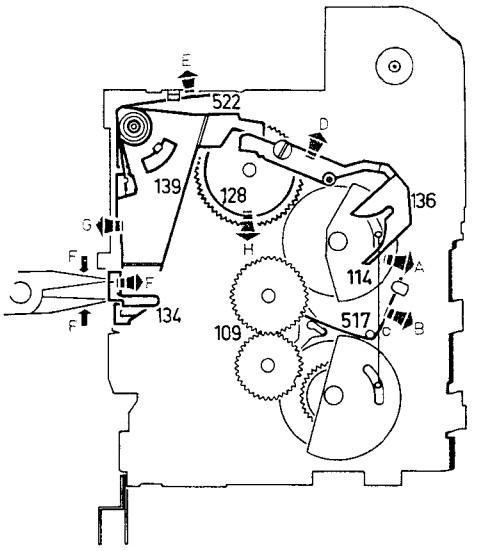


Fig. 10b

BRACKET 169

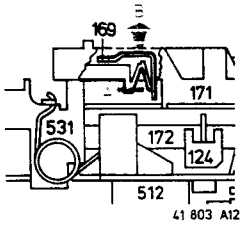


Fig. 11

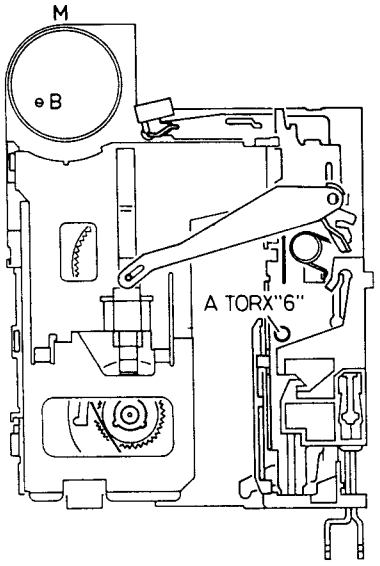


Fig. 12

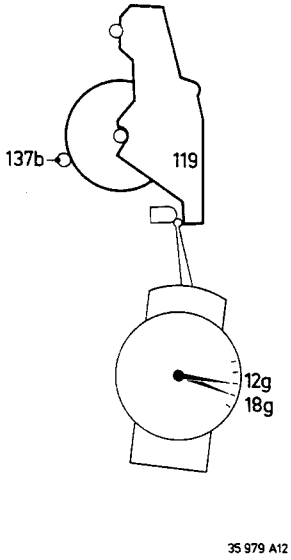


Fig. 13

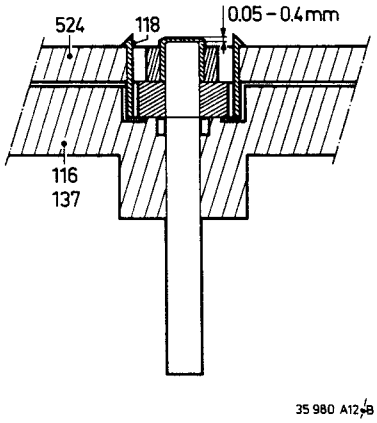


Fig. 14

(D)

LAUFWERKFUNKTION (Bilder 1...5)

In genannten Bildern sind mit Pfeilen die Bewegungen gekennzeichnet, welche die Teile bei einem bestimmten Vorgang ausführen.
In den beigelegten Tabellen ist die Bewegungsfolge festgelegt, wie sie in den Bildern gelesen werden soll.
Es wurde folgende Richtlinie zugrundegelegt:

1 → 3, 1 → 2 : Bewegung zweier verschiedener Teile

1 → 2, 1 → 2a : Bewegung nur eines Bauteils, das sich mit mehreren Teilen aufbaut und das wegen der Deutlichkeit des Bildes an mehreren Stellen Zeichnerisch dargestellt ist (etwa die Friktion).

Bild 1 zeigt die Ausgangsstellung
Bild 2...5 sind das Ergebnis der in Bild 1 ausgeführten Bewegungen (Cassette ist also eingelegt, Laufwerk befindet sich in Wiedergabestellung).

WARTUNG

Es empfiehlt sich, das Laufwerk in regelmässigen Zeitabständen zu reinigen und an den wichtigsten Stellen zu schmieren.

1. Reinigen mit Alkohol oder Spiritus

- Wiedergabekopf
- Tonwelle
- Andruckrolle
- Seilrolle

Zum Reinigen von Kopf, Druckrolle und Tonwelle kann auch eine s.g. "drop-in"-Reinigungscassette (SBC114-4822 389 20015) benutzt werden.

2. Schmiervorschrift

- Siehe Explosionsansicht 41207E.

REPARATURHINWEISE

An einigen Stellen sind Bauteile durch Kunststofnocken verriegelt.
Zum Ausbau dieser Bauteile müssen die Nocken verbogen, verdreht usw. werden.
Zahnrad 128b und Druckrollenbügel 119 sind durch eine Einschnapverbindung an den Achsen befestigt.
Mit Hilfe eines Schraubenziehers lassen sich diese Bauteile ausbauen.
Wenn Zahnrad 128b ausgewechselt wird, ist auch der zugehörige Bügel 128a auszuwechseln.
Auswechseln der genannten Bauteile siehe Bildern 6...11.

EINSTELLUNGEN UND KONTROLLEN

Benötigte Messgeräte

- Universal-Testcassette SBC419-4822 397 30069
- Universal-Testcassette SBC420-4822 397 30071
- Friktions-Testcassette 4822 395 30054
- Wechselspannungs-Millivoltmeter
- Federwaage 3-55p
- Gleichlaufanalysator.

1. Azimut (Bild 12)

- Beide Lautsprecherausgänge mit 4 Ω belasten.
- An beide Lautsprecherausgänge ein Wechselspannungs-Millivoltmeter schalten.
- Mit Hilfe einer Testcassette SBC419 oder SBC420 das 10-kHz-Signal wiedergeben.
- Schraube A auf den Mittelwert der Höchstausgangsspannungen einstellen.
- Die Differenz zwischen beiden Kanälen darf zuhöchst 4 dB betragen.

2. Aufwickelfriktion und Gegenzug

- Friktions-Testcassette in das Gerät einlegen. Die Aufwickelfriktion muss 55-70 pcm betragen, gemessen nach einer Einlaufdauer von 2 Minuten.
- Der Gegenzug muss 4.5-7.5 pcm betragen.
- Bei einem abweichenden Wert muss die Aufwickelfriktion oder der Gegenzug ausgewechselt werden.
- Die Aufwickelfriktion (SVL) muss 80-130 pcm sein (bei trockenem Wetter: niedriger Wert; bei feuchtem Wetter: hoher Wert).
  Einem zu hohen Wert ist abzuhelfen, dadurch dass Blattfeder 137a an den 3 Enden mit einem stumpfen Kunststoffstäbchen ein wenig zusammengedrückt wird.

3. Andruckrolle 119

- Kontrolle nach Bild 13.

Der Andruckrollendruck ist nicht einstellbar.
Bei einem abweichenden Wert muss Feder 172 ausgewechselt werden.

4. Gleichlaufschwankungen/Bandgeschwindigkeit

Es muss mit dem Autoradio komplett kontrolliert werden, und zwar wie folgt.
- Gleichlaufanalysator an die Lautsprecherausgänge schalten.
- Testcassette SBC419 oder SBC420 einlegen und das 3150-Hz-Signal wiedergeben.
- Der Jaulwert muss ≤ 0,3% sein.
- Die Bandgeschwindigkeit muss 4,76 cm/s ± 2% betragen.
  Die Geschwindigkeit lässt sich mit Schraube B (Bild 12) einstellen.

Bei einem übermässigen Jaulwert müssen folgende Teile auf ihre richtige Arbeitsweise (Einstellung) kontrolliert werden.
- Motor 132
- Andruckrolle 119
- Reibkupplung 103
- Schwungrad 137
- Seil 117
- Lager 113.
  Beim Auswechseln das neue Lager zuerst kurz "einlaufen" (Schwungrad ein wenig schräg einstecken und einige Umdrehungen schnell rotieren lassen).
- Scheibe 104.

5. Schwungrad 137

- Siehe Bild 14.

6. Lager 118

- So einstellen dass beide Nocken sich in der Mitte der Aussparungen der Lagerplatte 524 befinden

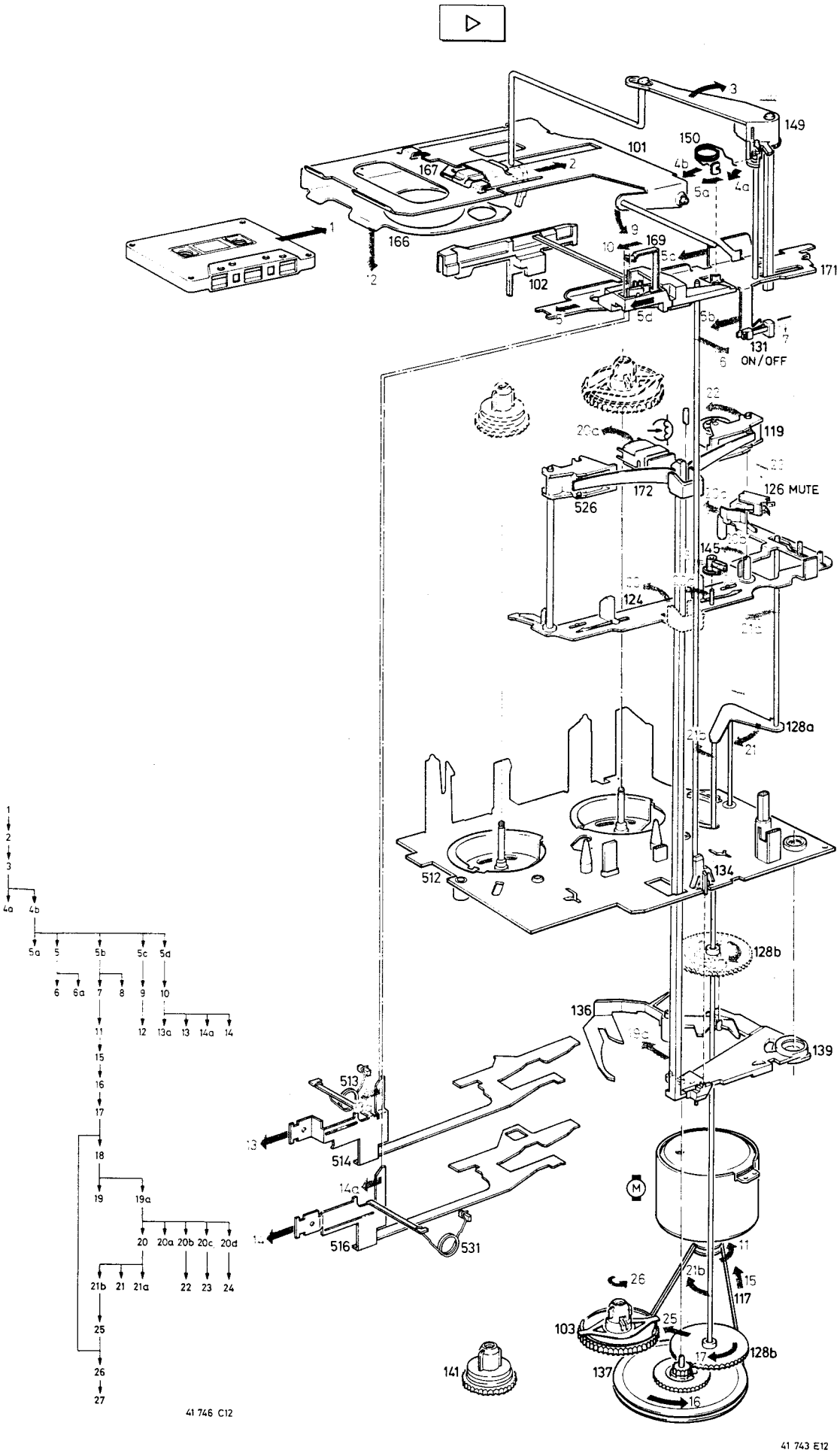
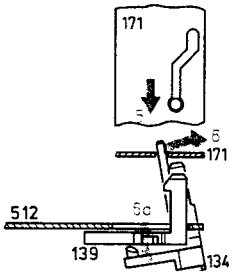
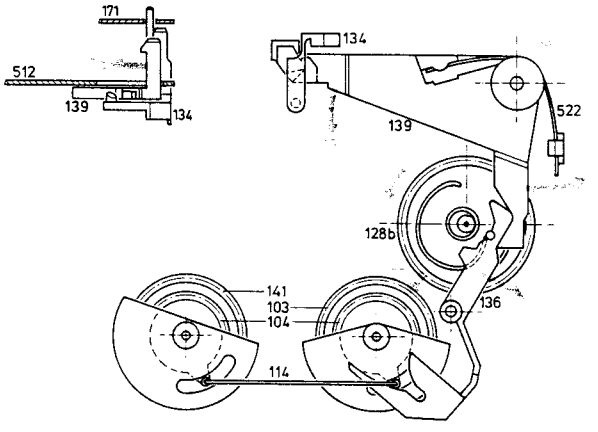

101
102
119
124
126 MUTE
128a
128b
131
ON/OFF
134
136
139
145
149
150
166
167
169
171
172
512
513
514
516
526
531
137
141
103
117
41 746 C12
41 743 E12

Fig. 1a



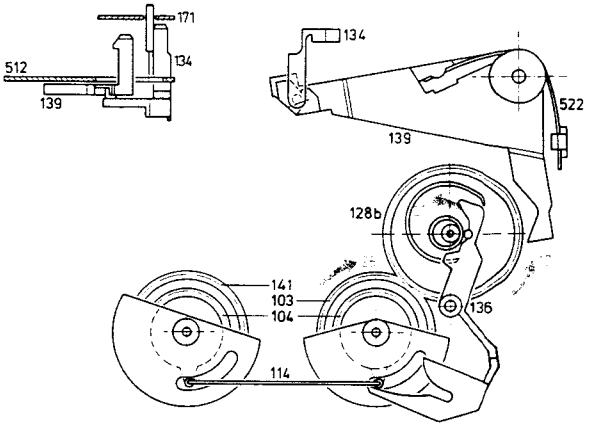
35 768 A7/A

Fig. 1b



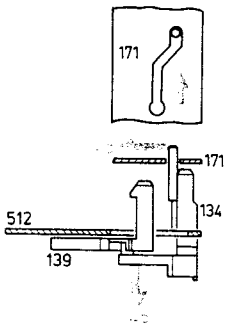
41 744 B12

Fig. 1c



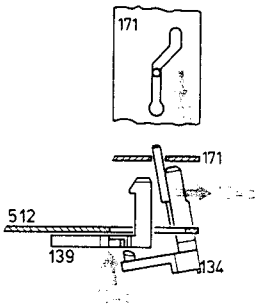
41 745 B12

Fig. 1d



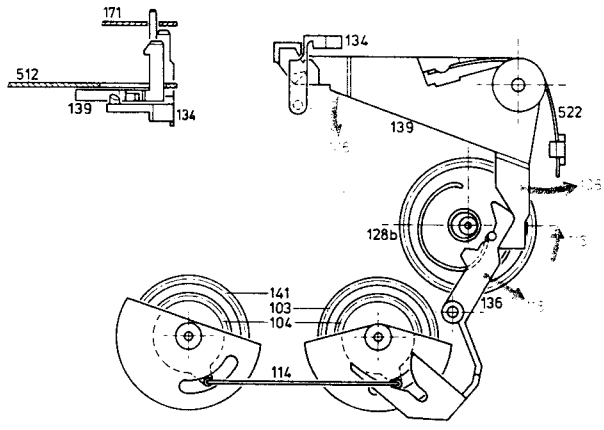
41 748 A12

Fig. 2b



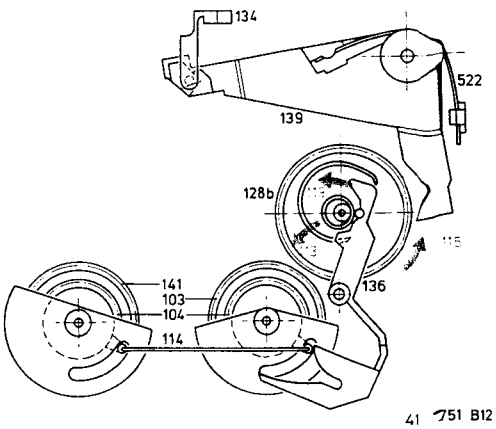
41 749 A12

Fig. 2c



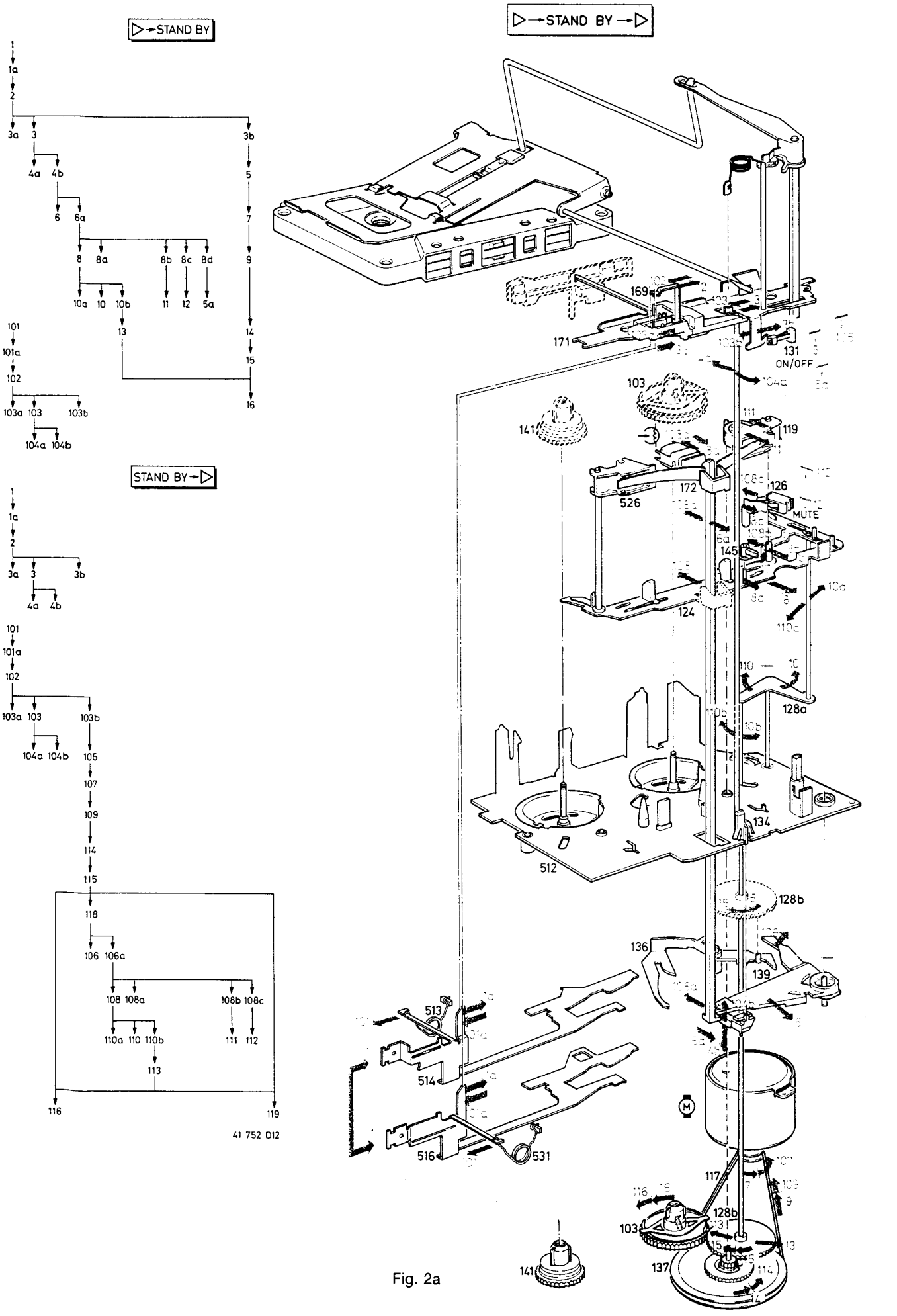
41 750 B12

Fig. 2d



41 751 B12

Fig. 2e


▷→STAND BY
1
1a
2
3a
3
3b
4a
4b
5
6
6a
7
8
8a
8b
8c
8d
9
10a
10
10b
11
12
5a
13
14
15
16
101
101a
102
103a
103
103b
104a
104b
STAND BY→▷
105
107
109
114
115
118
106
106a
108
108a
108b
108c
110a
110
110b
111
112
113
116
119
41 752 D12
▷→STAND BY →▷
169
171
131
ON/OFF
104c
141
119
172
526
126
MUTE
145
124
110a
128a
134
512
128b
136
139
513
514
516
531
117
137
Fig. 2a

TAPE END

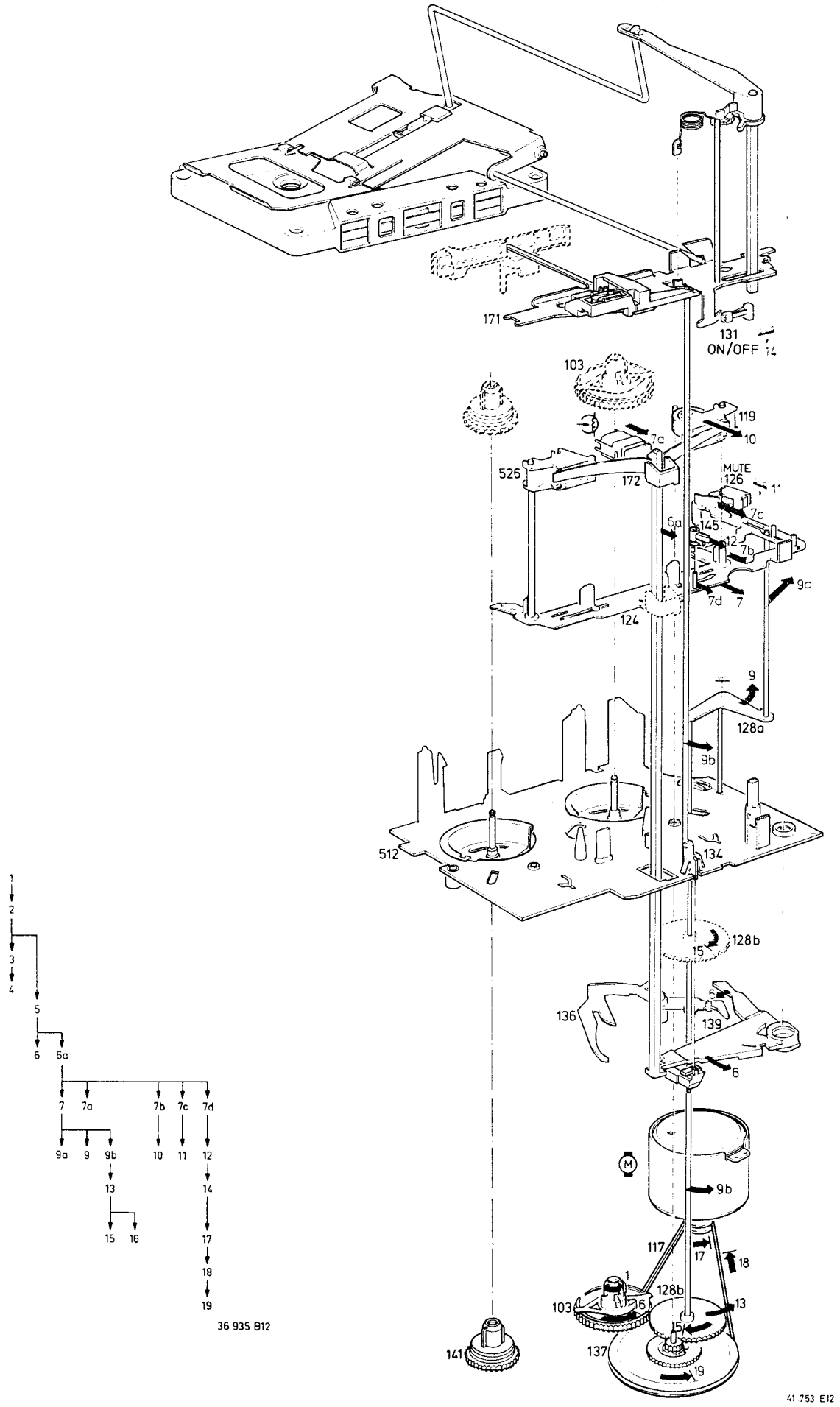


Fig. 3a

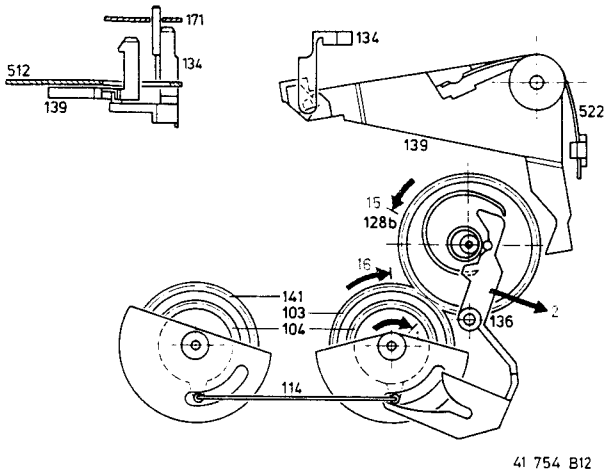


Fig. 3b

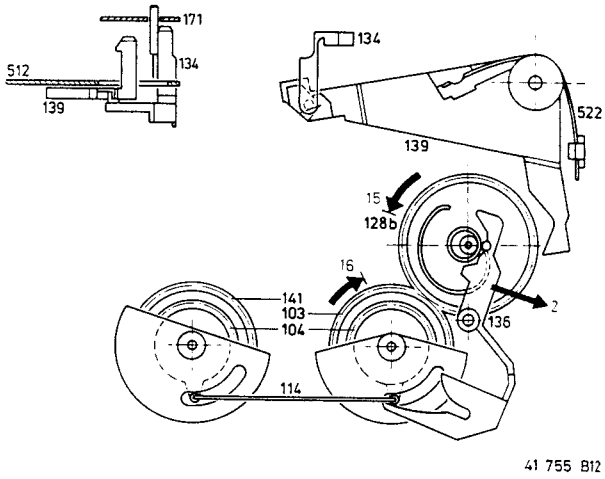


Fig. 3c

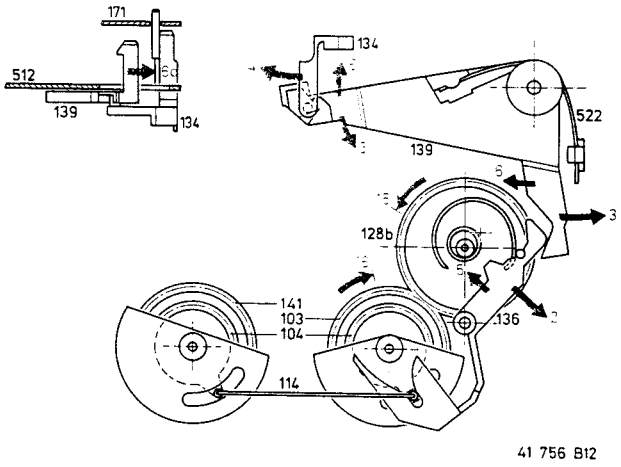


Fig. 3d

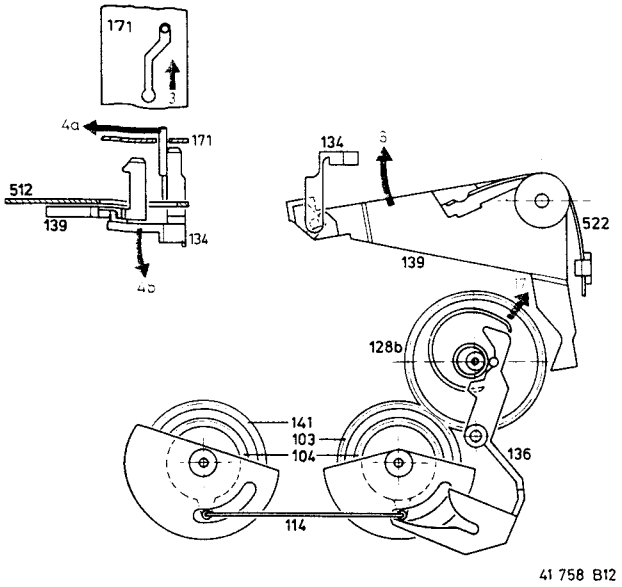


Fig. 4b

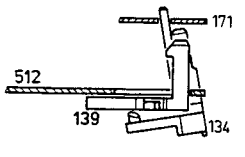


Fig. 4c

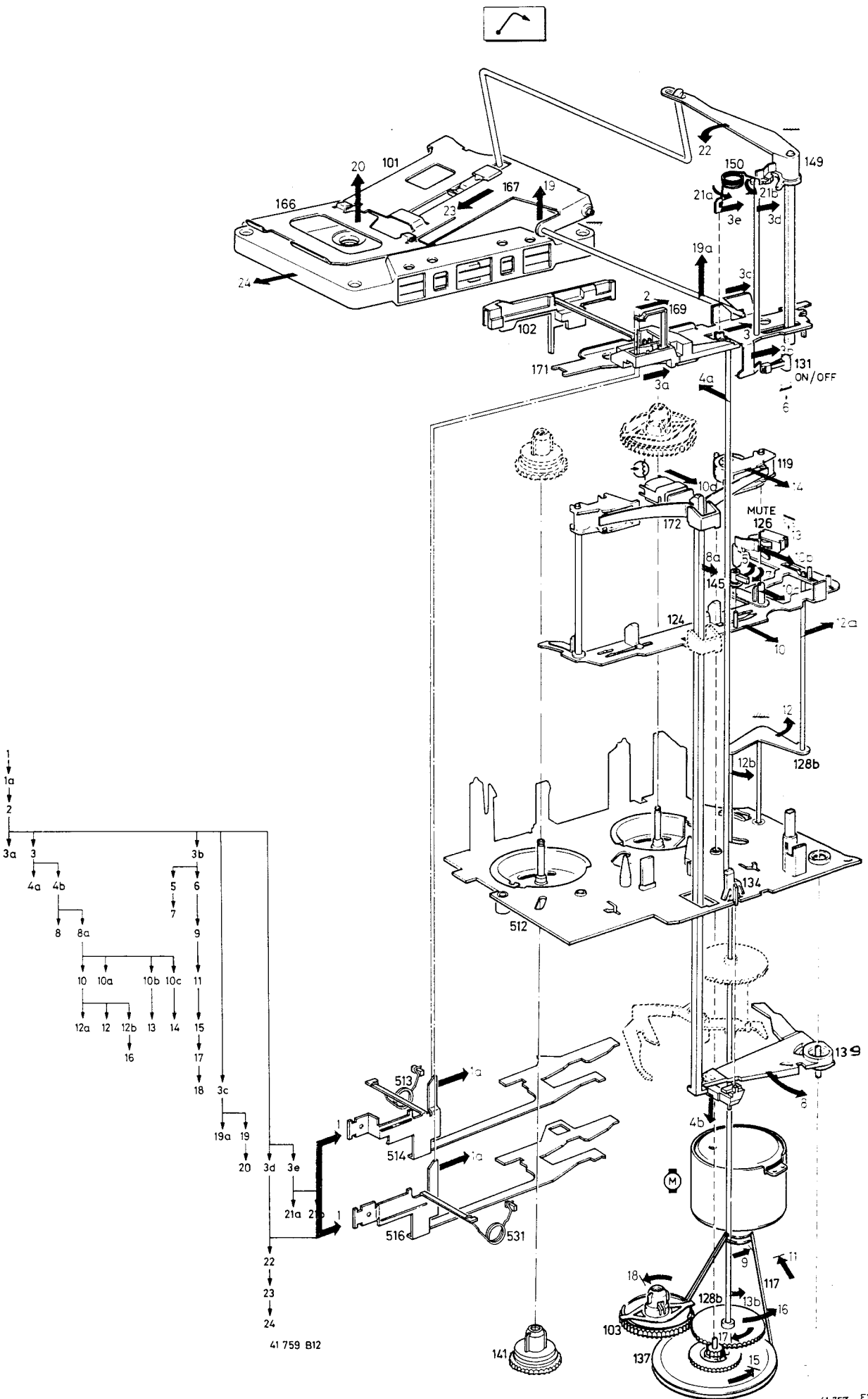
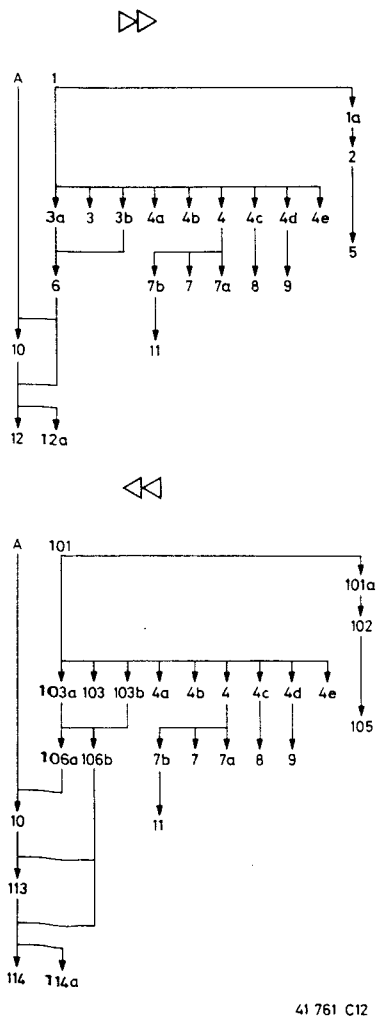


Fig. 4a


A
1
1a
2
3a
3
3b
4a
4b
4
4c
4d
4e
5
6
7b
7
7a
8
9
10
11
12
12a
A
101
101a
102
103a
103
103b
4a
4b
4
4c
4d
4e
105
106a
106b
7b
7
7a
8
9
10
11
113
114
114a
41 761 C12

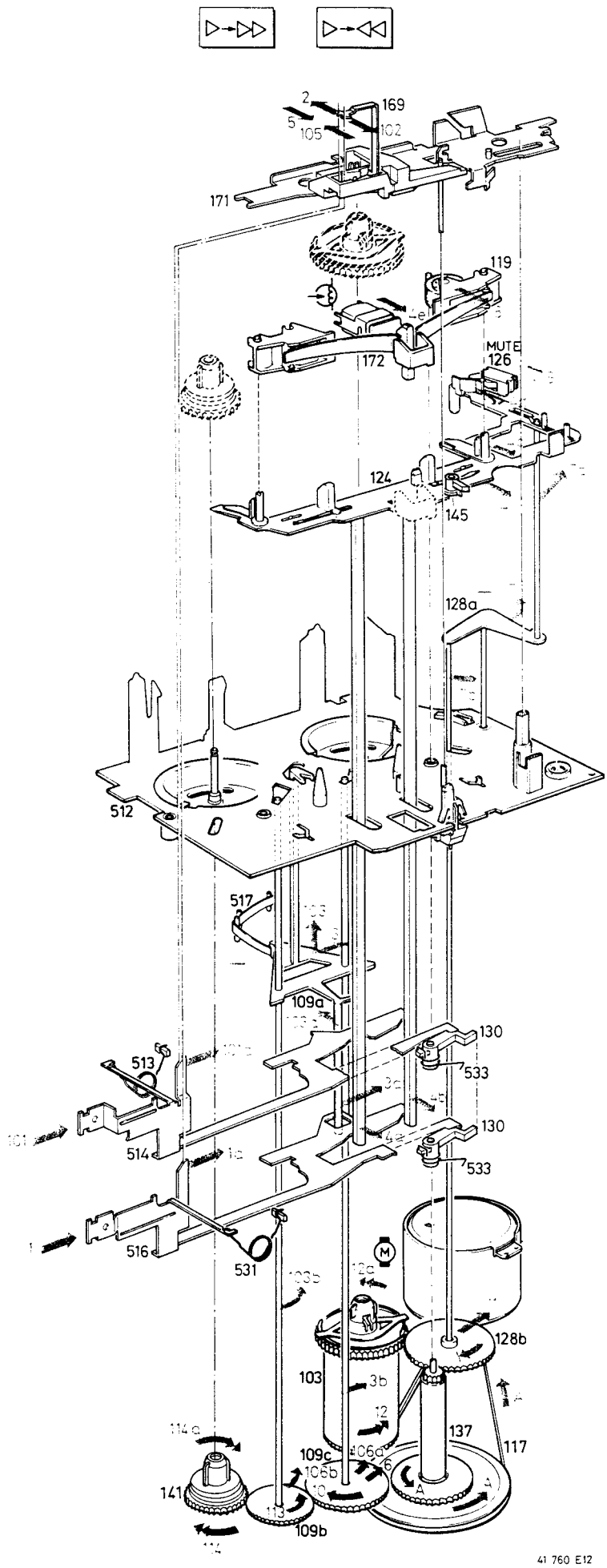
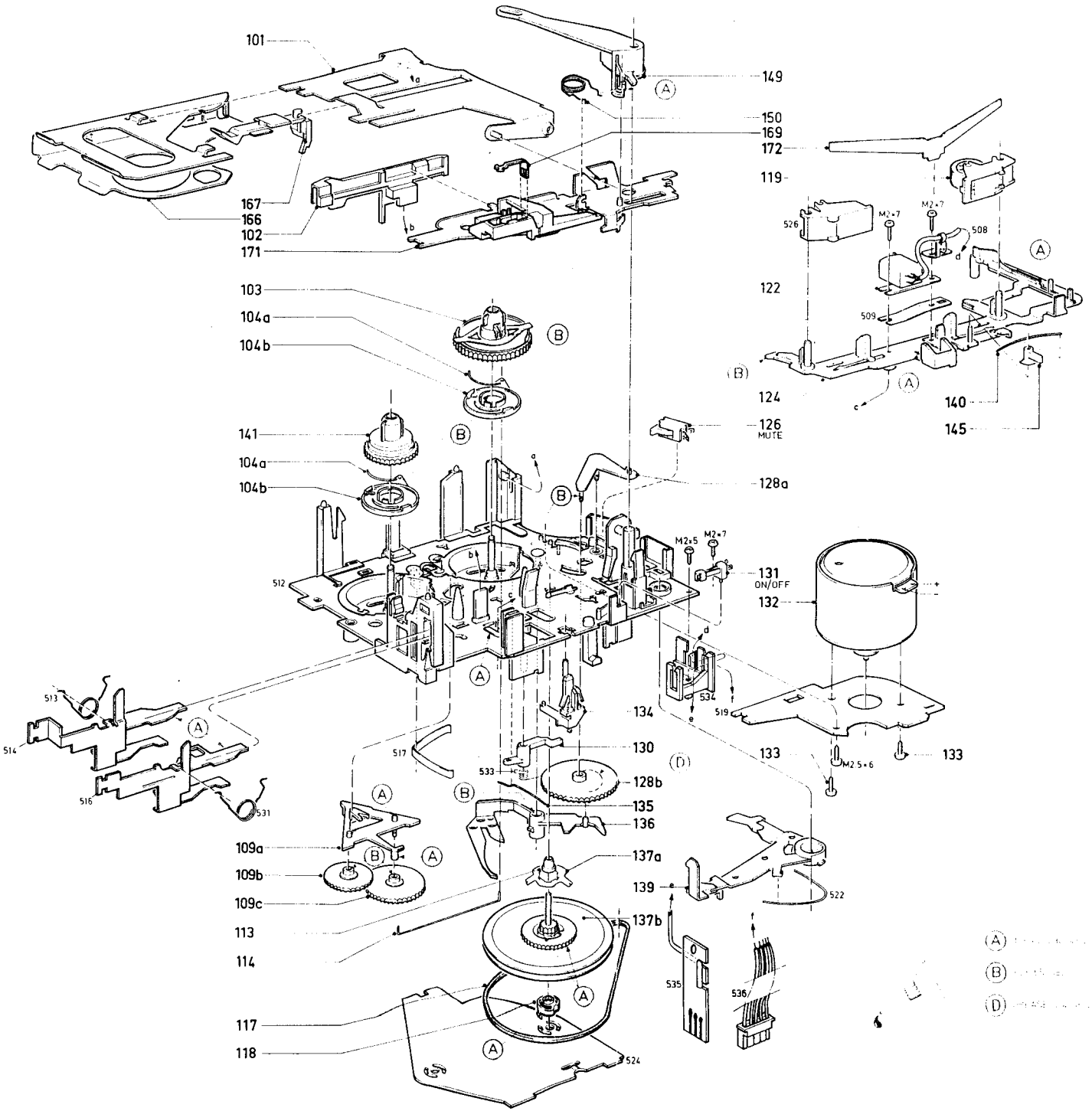

169
105
102
171
119
172
MUTE
126
124
145
128a
512
517
109a
130
533
513
514
516
531
128b
103
137
117
109c
106a
106b
141
109b
41 760 E12

Fig. 5



A	4822 390 20128
B	4822 390 10107
D	4822 390 20116
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102	4822 462 30242
103	4822 466 70526
104	4822 466 70527
109	4822 522 20327
113	4822 520 30406
117	4822 358 30429
118	4822 520 30407
119	4822 403 40157
122	4822 249 10195
124	4822 459 80209
126	4822 277 10749
128	4822 522 20326
131	4822 276 11291
132	4822 361 20505
133	4822 502 12548
134	4822 403 10225
135	4822 492 63217
136	4822 403 52031
137	4822 528 80984
139	4822 403 52029
141	4822 528 20399
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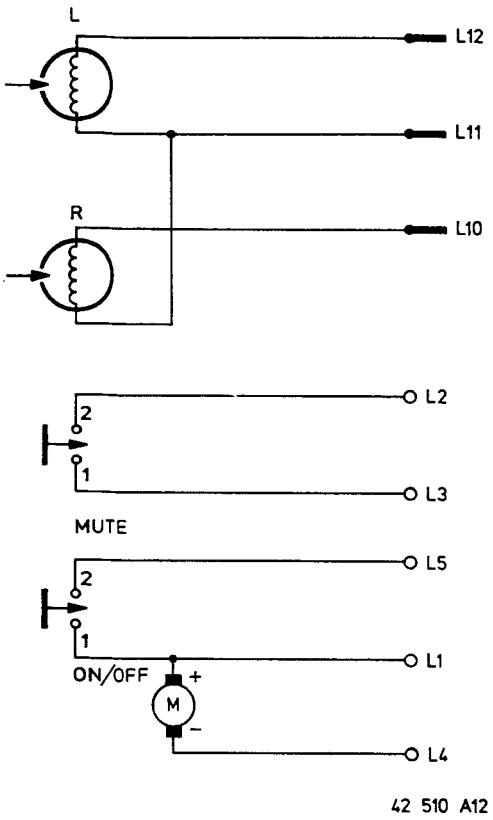
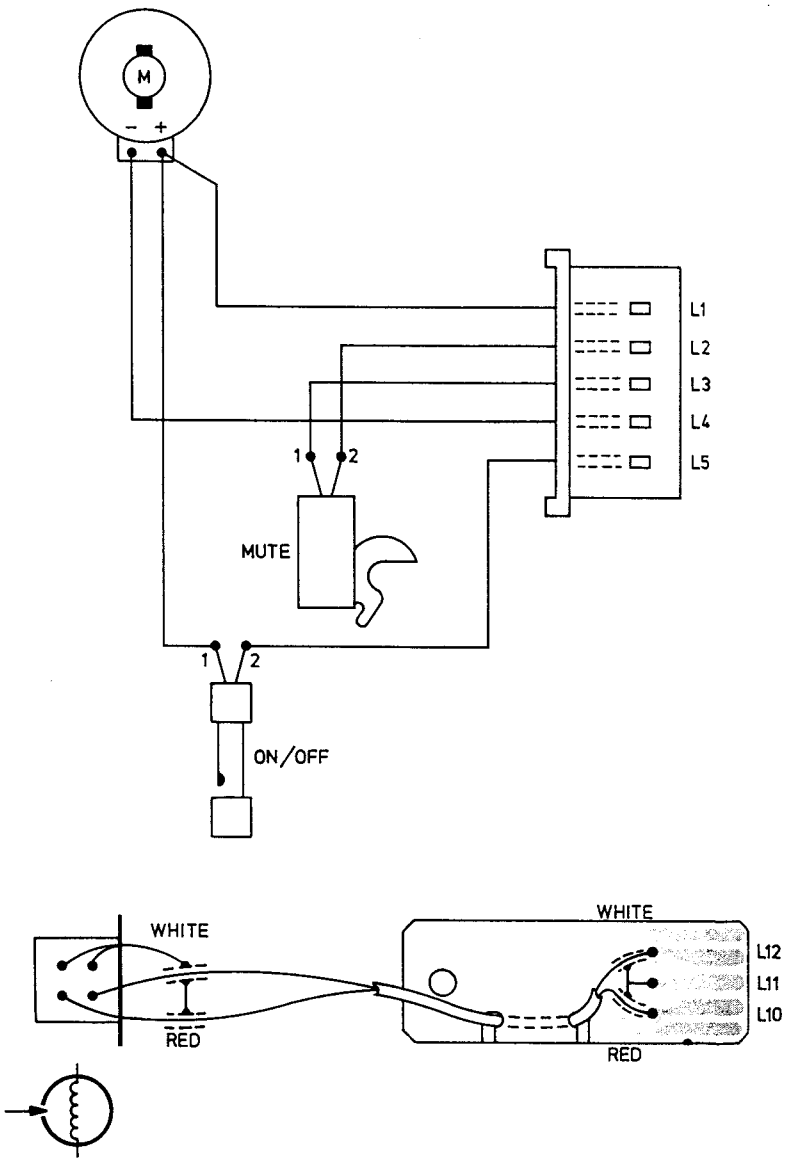


42 510 A12



42 511 B12